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office management

the magazine for management executives

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in this issue

- How one small agency solved its paperwork problems—without mechanization, without added personnel
- First reports on the AMA March electronics conference

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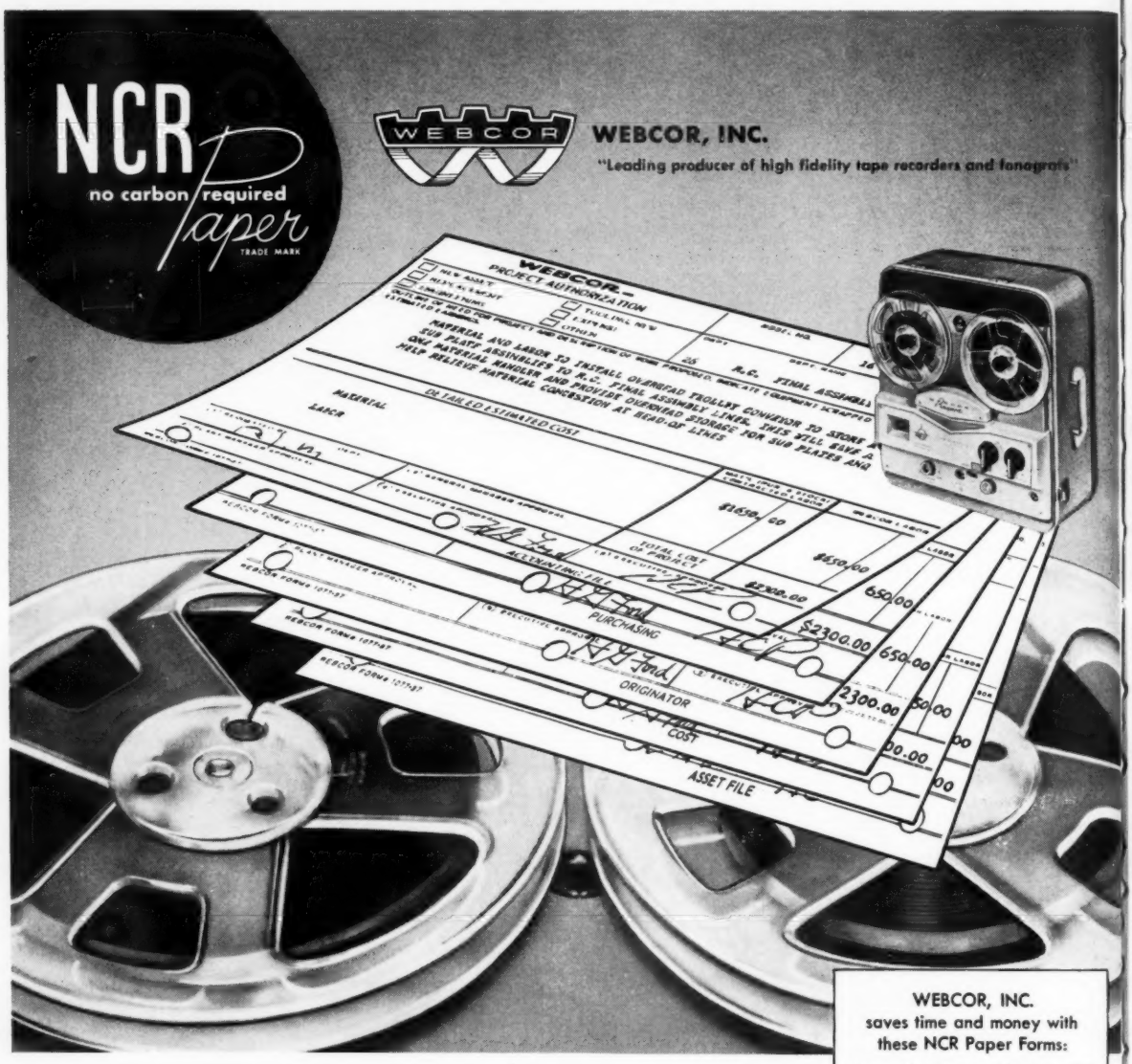

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APRIL 1959
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office management

Office Methods, Equipment, Personnel, and Purchasing
Sponsor of the "Office of the Year" Awards

in this issue:

How one small agency cut costs, speeded paperwork without mechanization **25**
by Robert A. Shiff and Ralph E. Steere

It pays to know printing techniques if a good forms control job is to be done **28**
by Ray Marien

NOMA will hold 40th annual conference and business show in New Orleans next month **31**

Computers are key to programming entire businesses, LaPierre tells AMA **32**

Presenting the "Office of the Year" Award winners, 1958 **34**

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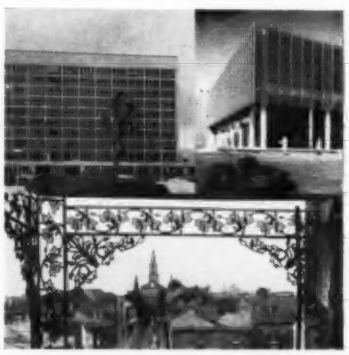
Tools of the office series **44**
This month: air conditioning equipment, fans and air circulators

The integrated company (*Editorial*) **90**



THE NATIONAL Office Management Association, which has held its last several conferences in Canada and Northern, Western, and Midwestern States, this year heads South — all the way south to the Crescent City, New Orleans. For a complete story on the conference program, see page 31.

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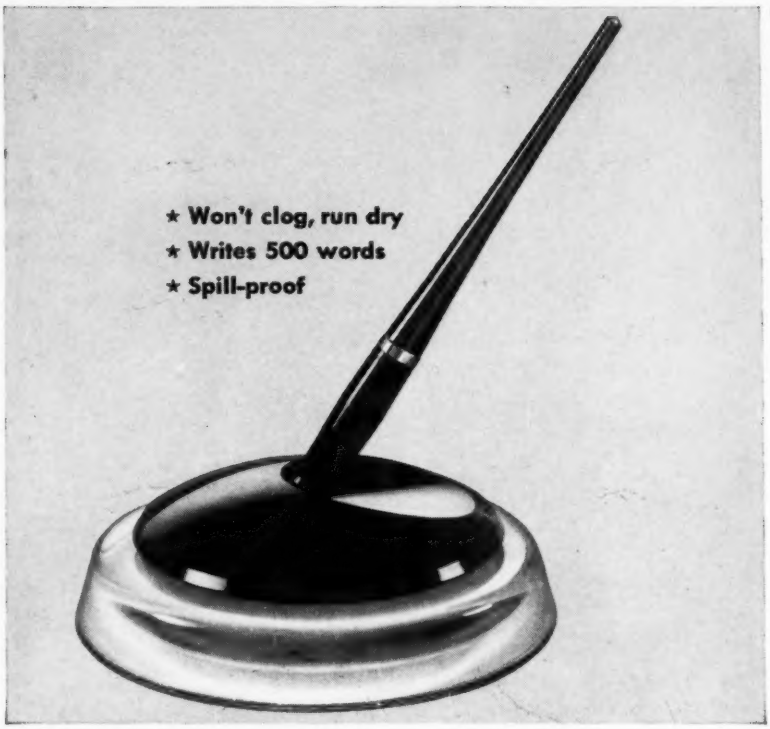

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Pitney-Bowes plans to match employees' educational gifts

Pitney-Bowes, Inc., which has had an extensive aid-to-education plan on a corporate basis for some time, recently announced that it has also created a Matching Educational Gift Program under which the company will match dollar for dollar employee contributions to any college or university.

Any one of the company's 4,339 employees may participate in the plan regardless or whether he or she attended the college to which the contribution is being made.

Five dollars is the minimum gift which the company will match, and the upper limit is $500 per employee in any one year.

Walter H. Wheeler, Jr., Pitney-Bowes president, said the plan has been instituted because of the company's conviction of the need for greater financial support of the nation's colleges and universities.

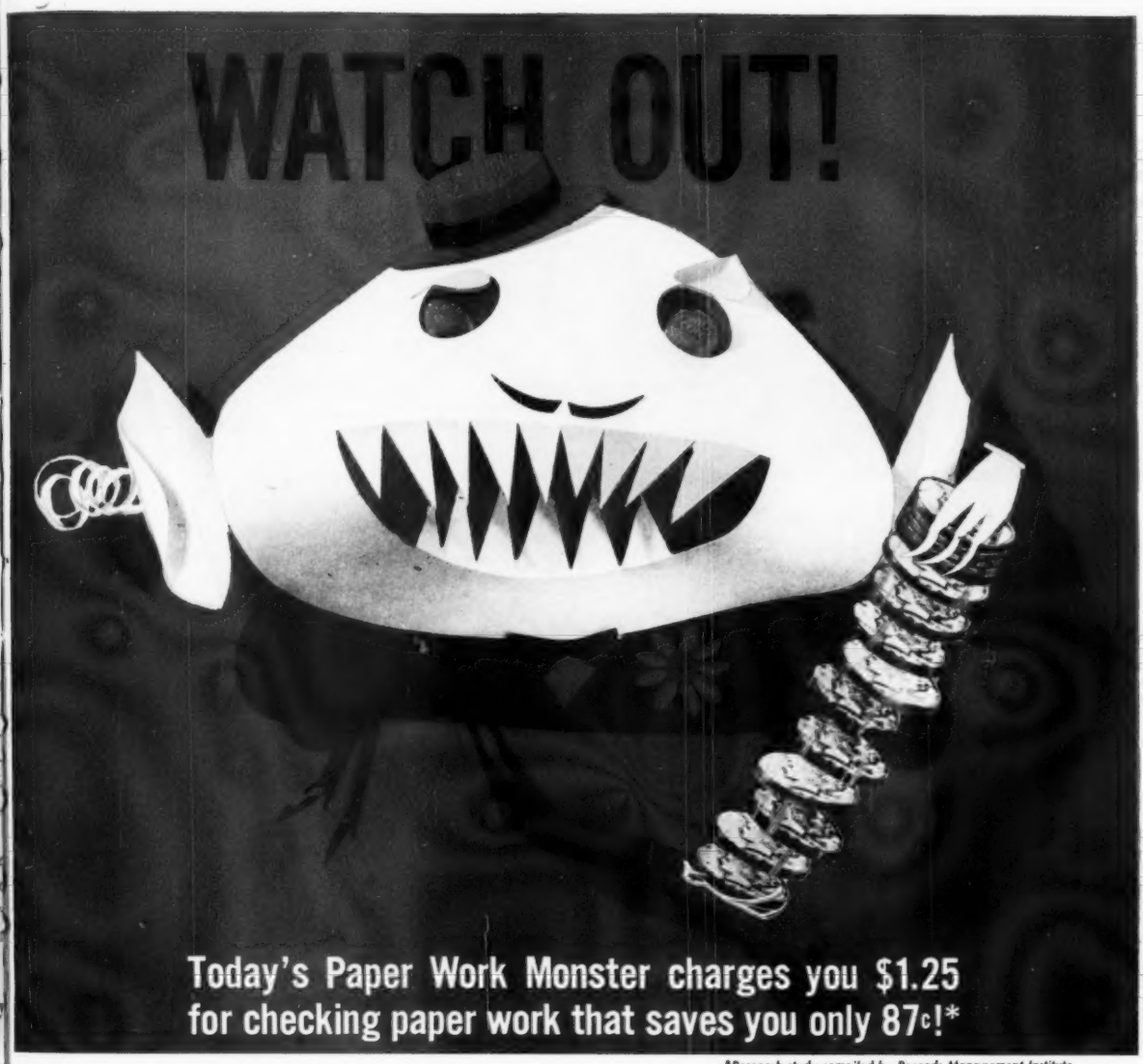
"The nation has never known a time when its need for educated men and women was so great," he declared. "Meanwhile the colleges and universities of the country are already overcrowded, and are finding it more difficult than ever to finance their operations.

"A number of companies have matching gift programs, and have found they encourage individual giving," he continued. "We hope our program will have the same results."

"Figure men" not threatened by computers, Controllers told

"Figure men"—economists, controllers, accountants, and statisticians—will not be replaced by electronic machines, but will find themselves freed from much of the routine work now met in their jobs, Wilson Seney, senior consultant, McKinsey & Co., Inc., told members of The Controllers Institute at a meeting last month in Bridgeport, Conn.

"Actually," he said, "developments in the electronic handling of symbols and figures have opened new vistas for the financial executive. Machines are taking over the drudgery of analysis and problem solving. Financial and accounting executives now have the opportunity to concentrate on tasks that can be performed only by men and not by machines. If they pursue their opportunities intelligently perhaps credit will go to electronics for improving



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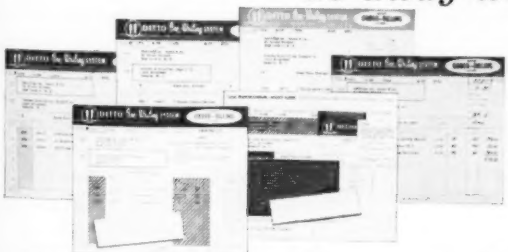

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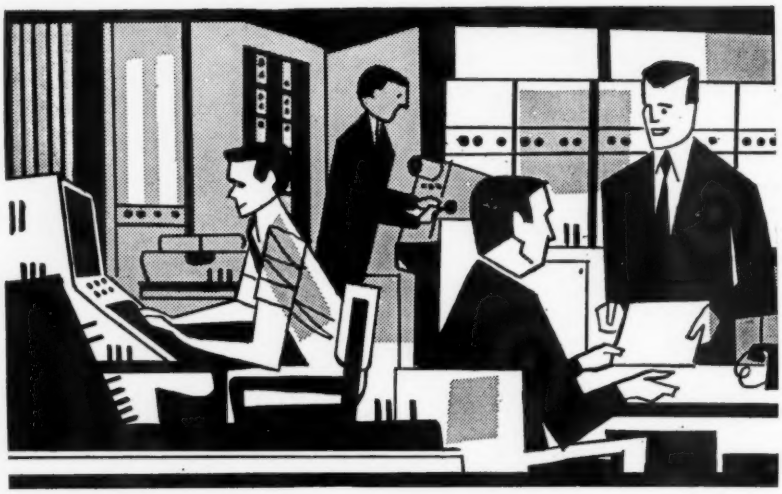

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AUTOMATION IN THE OFFICE

Since the appearance of the first discussion on the subject of Automation in the Office in the August issue of 1952, OFFICE MANAGEMENT has published articles on Automation on a regular basis to keep the office abreast of everything new on this modern technique. Here are some typical ones:

JANUARY, 1958
How to prepare an office for a computer installation
FEBRUARY, 1958
Basic steps in programming a computer for a single operation
by Ben Conway
JUNE, 1958
Why small companies may need automation even more than larger concerns
by Robert M. Smith
JULY 1958
Why small companies need automation even more than larger concerns
Part 2 Equipment for "Automation in the Office"
AUGUST 1958
Why small companies need automation even more than larger concerns. (Conclusion)
SEPTEMBER 1958
The role of automation in freeing managers for more creative work.
OCTOBER 1958
Why new computer coding techniques may accelerate pace of office automation — by Robert M. Smith
JANUARY 1959 (Yearbook Issue)
Effects of recession still felt in current trends in automation
by Robert M. Smith

WHAT IS AUTOMATION IN THE OFFICE?

Automation in the office is the use of the rapidly multiplying new systems developments and facilities of electronics to synchronize the functions of separate units of equipment into an overall operation. Importantly, while it can and does employ the latest in electronic computers and other new devices, it does not necessarily call for costly or experimental type of machines and equipment. Equipment presently in use in every modern office in America can be geared in one way or another to Automation.
As new progress is achieved and case histories are reported, OFFICE MANAGEMENT will carry the great story forward.

OFFICE MANAGEMENT

The Magazine for Management Executives — Since 1940
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management practice as well as data processing techniques.

"Management (and specifically the practice of financial and accounting management) is a function of men—not of machines," he continued. "In the past, the important contributions of executives have been non-mechanical and non-electronic. In the future, financial and accounting executives will continue to be valuable to American business for the same basic reason as in the past: managerial ability. The financial executive who demonstrates this thesis might be called the non-electronic controller.

"The controller should use positive thinking to gain acceptance on the top management team," Mr. Seney concluded, "rather than use his function only as a checkrein on spending. He should participate in profit forecasts and long and short range planning. The broad gauge financial executive tailors his accounting and reporting practices to the business he is serving. He provides information effectively and economically because he understands management's job. These non-mechanical, non-electronic, and very human abilities have been and will continue to be the factors that make the non-electronic controller an asset to his organization."

California university plans new "general" course for executives

The University of California plans to begin a new summer program in "Executive Education" this June, to "help managers develop further understanding and fresh insights in dealing with the economic, social, legal, and political forces in our environment which affect the structure and operation of business."

The new course, which begins June 1 at Berkeley, will run for four weeks, and will limit registration to thirty executives. Faculty members, most of whom will be drawn from the University of California, will represent the Departments of Economics, Sociology, Political Science, Psychology, Chemistry, Physics, as well as the School of Business Administration and the College of Engineering.

Companies which have already registered executives for the course include Pacific Telephone and Telegraph, Pacific Gas and Electric, Columbia-Geneva Steel, Southern Pacific, Bank of America, Wells Fargo Bank, Boeing Aircraft, American Trust, Standard Oil of

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California, Western Electric, Crocker-Anglo Bank, and Lockheed, according to Ewald T. Grether, Dean of the University Graduate School of Business Administration.

Westinghouse reveals new plan to speed production paperwork

Westinghouse Electric Corp. has announced the development of a new system utilizing semi-automatic and automatic business machi ·o cut preproduction time and cost the manufacture of new milita weapons. Termed MMI — mechanized manufacturing information—the new technique could also be applied to civilian production, according to the company.

The new system, which is in opc tion at the Air Arm Division, nea Baltimore, where military electroni equipment is manufactured, is based on issuing basic new product informa tion to all departments simultaneously, instead of processing needed operating information through each department in sequence. All basic information on the new product to be made is entered on perforated paper tape immediately after engineering drawings and specifications are issued. From this point on data needed by each department are issued simultaneously on either tape or punched cards so that purchasing, for instance, can begin to acquire materials while manufacturing is preparing to process the materials when they arrive.

According to Dr. Patrick Conley, manager of Air Arm, total elapsed time needed to process manufacturing information under the former system was from four to ten weeks, depending on the complexity of the product. Tota elapsed time with MMI is from two to five weeks. The new system is expected to save a half-million dollars in the Air Arm Division's paperwork processing costs by 1962.

Business form sales set record in '57, '58, Institute hears

Business forms sales during 1958 equalled the record set in 1957, members of the Business Forms Institute reported at that organization's annual meeting, held in New York at the en of February.

According to the Institute, $350,000,000 worth of business forms were sold each year, and prospects are that sales figures will continue to rise in 1959.

W. C. Lamprechter, vice president

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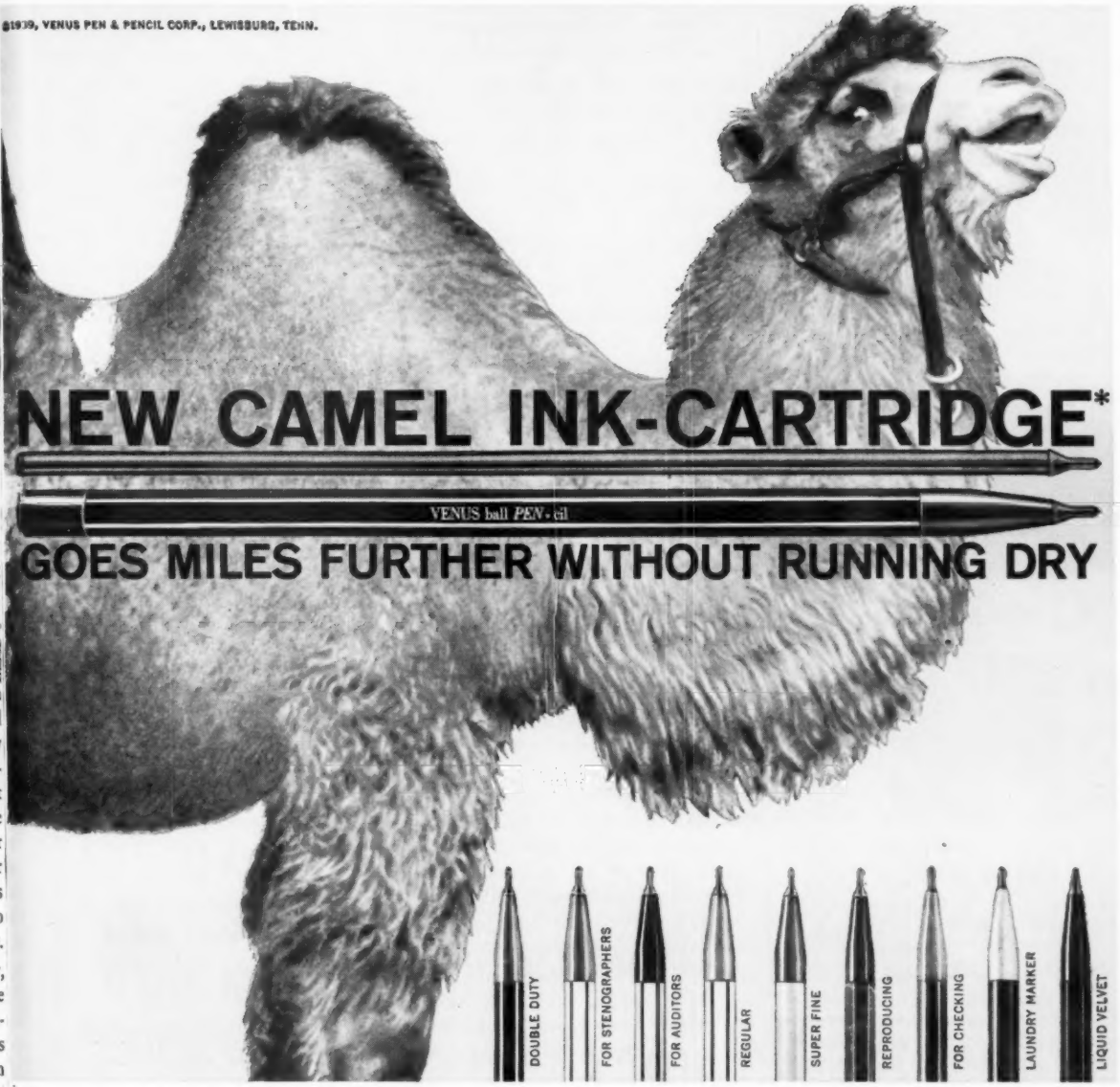

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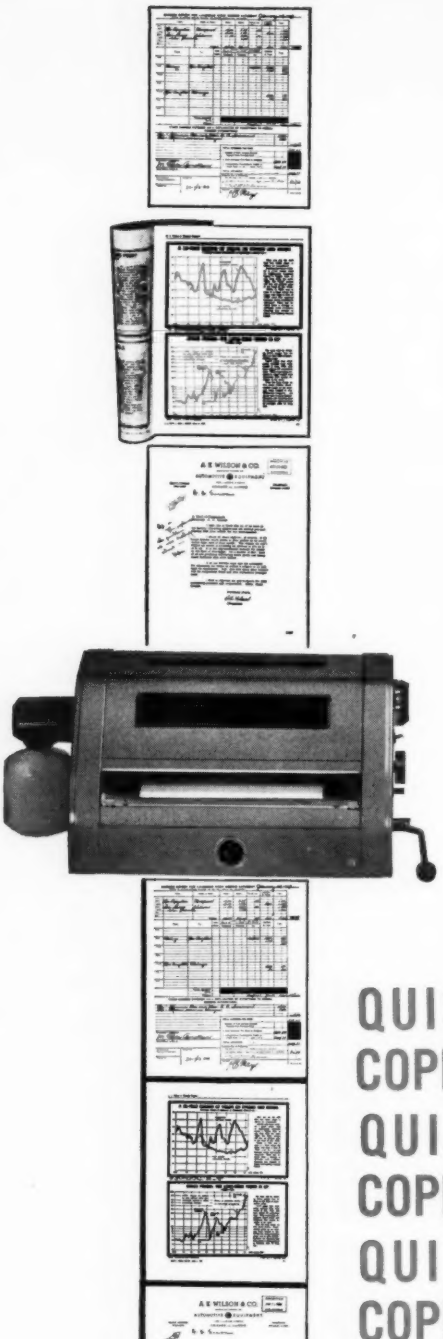

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and general manager, Stephen Greene Co., Philadelphia, was relected president of the Institute at the annual meeting. Elected first vice president was Lester J. Johnsen, executive vice president, Atlantic Register Co., Waltham, Mass. He succeeds T. S. Duncanson, president of Moore Business Forms, Inc., Niagara Falls, N. Y.

In Short—

Chicago University will give four-week course in long range planning.

The University of Chicago Graduate School of Business will hold a special four week course in "Long Range Planning for Business" from April 20 to May 15. The course will cover Long Range Financial Planning, Planning for the Management of Human Resources, Governmental Policy and Business Planning, and Economic Analysis of Long Range Trends. The course, which will be held on the University of Chicago campus, will be restricted to 25 registrants, who will be housed at a nearby hotel. Fee for course and living expenses is $1750.

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Purchasing agents report wide variations in different industries' recovery rates

While signs of business recovery from last year's recession continue to be encouraging, there is still a wide variation in the rate of recovery between different industries, according to a recent survey by the National Association of Purchasing Agents. Capital goods purchases are lagging still, according to the report.

There are some indications, too, according to the Association, that part of the present good business is due to buyers making heavy purchases now in anticipation of possible strikes this summer which would put certain categories of goods and equipment in short supply.

Ebasco adds California affiliate in move to widen its community planning services.

Ebasco Services, Inc., national organization specializing in management consulting, engineering, and construction services, has announced a new affiliation with Pacific Planning and Research, Inc., a city planning firm with offices in Sacramento and Palo Alto, Calif.

The California firm offers services in city and regional planning, urban renewal, urban economics and natural resources planning. Its new affiliation with Ebasco represents a continuing expansion of the latter firm's interest in community planning, according to Harold H. Scaff, Ebasco vice president.

People in the News

Joseph J. Guidrey, former controller of Sylvania Lighting Products, a division of Sylvania Electric Products, Inc., has been named manager of Sylvania Electric's Data Processing Center at Camillus, N. Y. He succeeds *Edgar G. Dunn,* first Center manager, who has been appointed assistant to the controller, Sylvania Electric. *John J. Davis,* former controller of Sylvania Electric's Chemical and Metallurgical Division, has been appointed controller of Sylvania Lighting Products.

Fred A. Sabacek, former controller, Ozalid Division, General Aniline & Film Corp., New York, has been elected president of Reproduction Products Co., a Detroit subsidiary of General

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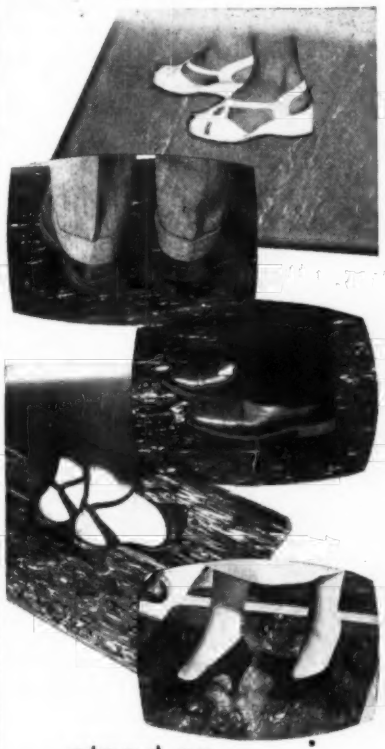
The feet of relaxed, efficient employees . . .



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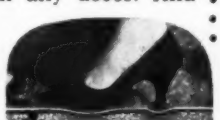

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FLEXOWRITER® is an automatic writing machine which produces a code-punched tape as a by-product of writing the original document. As the common-language link in an integrated data processing system, the punched tape automatically creates other records, eliminating the continuous manual re-processing of data that runs up office costs. Auxiliary units expand Flexowriter applications. Friden's SELECTADATA®, for example, searches out and prints selected data in punched tape. Selectadata can be programmed to select specific items in billing or invoicing, names and addresses, any of scores of specified item data.

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WHATEVER *kind* of business you're in, however *big* or *small* your office operation, your firm can have a Friden-automated office with maximum savings in overhead costs.

Friden has made its name and fame in the office equipment field with machines that mechanize office functions, eliminating personnel movements and decisions. And for these particular automation units, you do *not* pay a fortune!

Friden automation units range from the astonishing Tape-Talk machines—the Computyper®, Flexowriter®, Teledata® and others of this group—to the brilliant Friden Calculator, *The Thinking Machine of American Business*, and Friden *Natural Way* Adding Machines.

Start with one Friden unit, then add another and another as *each pays for itself.* This is the practical, economical way to convert your office routines to profitable automation!

Friden *has the system*

Automatic office operation is the Friden function—Call your Friden Man or write Friden, Inc., San Leandro, California . . . sales, instruction, service throughout U.S. and the world.

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FRIDEN SILVER ANNIVERSARY • 1934-1959

Use Readers' Inquiry Coupon on Page 88

Aniline & Film. He succeeds *Thomas Kizer,* who has resigned.

Dr. Mervin J. Kelly, retiring chairman and former president of Bell Telephone Laboratories, has been engaged by International Business Machines Corp., as a research and engineering consultant, according to a recent announcement by *Thomas J. Watson, Jr.* IBM president.

John E. Mossman, former president, Desks, Inc., New York, and *Jack G. Schwander,* former board chairman of that concern, have both been named vice presidents and directors of the B. L. Marble Chair Co., Bedford, Ohio. They will head a newly expanded Marble sales office in New York.

Russell L. Rankin, former manager of advance planning for Royal Precision Corp., Port Chester, N. Y., has been appointed a vice president of that concern, and *Lawrence R. Foley,* former chief accountant for the Port Chester firm, has been named treasurer. Royal Precision is a jointly owned subsidiary of Royal McBee Corp., and General Precision Equipment Corp.

Carl P. Ray, former vice president in charge of the international department, Underwood Corp., New York, has been appointed assistant to the president, Royal McBee Corp., New York.

D. E. Kressler, former head of the patent division, Burroughs Corp., Detroit, has been named assistant secretary of Burroughs.

Victor White, formerly associated with the Alwac Corp., has been named vice president of Systematics, Inc., New York.

Van B. Phillips, formerly general sales manager, has assumed the position of vice president of sales and advertising for the Recordak Corp., subsidiary of Eastman Kodak Co., New York.

Harold Grigg has retired from the position of international division manager for the Mosler Safe Co., New York, to be succeeded by *James R. Costello.*

Roscoe Clark has been named vice-chairman, and *Ralph R. Davis* vice-president, of the Art Metal Construction Co., Jamestown, N. Y.

the machine that made office dictation and transcribing

50% SIMPLER

the Norelco '35'

featuring instantaneous, jam-proof
MAGAZINE LOADING

SIMPLER to dictate

SIMPLER to transcribe

SIMPLER to carry

With just five simple controls where comparable machines use as many as ten . . . with two-second magazine loading where others fumble with old-fashioned hand threading . . . with crystal-clear, easy-on-the-ear voice reproduction where others require nerve-racking concentration . . . the new NORELCO '35' makes it at least 50% simpler, easier and pleasanter to give and take office dictation. Engineered by Philips of the Netherlands, world's largest electronics concern outside the United States, the NORELCO '35' has already established its reputation as the most advanced moderately-priced dictating machine in the world.

Check these features against any other dictating/transcribing machine at any price!

- ✓ **Magazine Loading** — fumble-proof, jam-proof, takes 2 seconds
- ✓ **Extra-Long Dictating Capacity** — 35 minutes on dual tracks of one reel
- ✓ **Easy Portability** — only 8 lbs; fits anywhere, travels anywhere
- ✓ **Only 5 Controls** — for all functions: dictating, playback, fast-forward, fast-rewind, quick-review, quick-erase and stop.
- ✓ **True-Fidelity Sound**—prevents fatigue in transcribing; speeds typing
- ✓ **Automatic Counter**—extra accurate; can find and pinpoint a single word
- ✓ **Modern Decorator Styling**—two-tone green trimmed with maroon; blends with any decor

only $179.50 *plus tax*
complete with loaded magazine, log pad, and dust cover, plus choice of (A) microphone/speaker or (B) stethoscope headset with foot control or (C) stethoscope headset with typewriter control (latter at slight extra cost).

MAIL COUPON FOR FREE DEMONSTRATION! *NO OBLIGATION!*

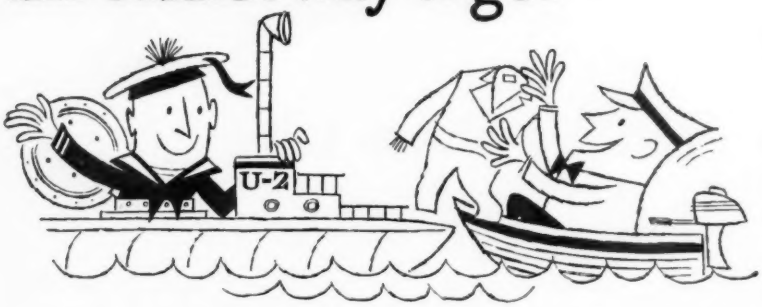
NORTH AMERICAN PHILIPS CO., INC., Dictating Equipment Division
230 Duffy Avenue, Hicksville, Long Island, N. Y.
Gentlemen:
I am interested in finding out what the new magazine-loading NORELCO '35' dictating machine can do for me, at my office.
☐ Kindly send additional literature.
☐ Please arrange for a free demonstration, without obligation, on or about (Date)..... at

Company_____
Address_____
City_____ Zone_____ State_____
OM-4 Attention of_____ Title_____

In Canada, the Norelco '35' is known as the 'Philips' dictating machine and is

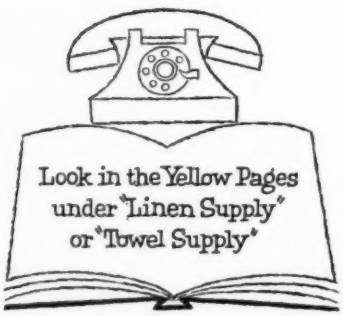
No matter who you are ...

the easiest way to get



cotton towels, uniforms & linens

is to call your Linen Supply Man!



You only call once to arrange for regular, dependable delivery of all your linen requirements. You get the luxury and quality of cotton cloth. (And, of course, there is no substitute for cloth.)
The nearest Linen Supplier is no further away than your telephone. Call today.

Linen Supply
ASSOCIATION OF AMERICA
and National Cotton Council
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Note: No investment, no maintenance, no inventory. Everything is furnished and serviced by your linen supplier, at low cost, and tailored to your needs.

Use Readers' Inquiry Coupon on Page 88

Robert W. Humphrey of the New York Stock Exchange, has been elected president of the Association of Records Executives and Administrators, New York.

H. W. Fred Shaw of Kaiser Steel Corp., Oakland, Calif., has been elected president of the American Records Management Association.

Richard B. Dempsey has been appointed manager of the office management department of The Babcock & Wilcox Co.'s Staff Div. in New York.

Robert C. Ransom, a member of IBM Corp.'s legal staff in New York, has been elected assistant secretary of the firm.

Henry S. Forrest has been promoted to the position of vice-president of Control Data Corp., Minneapolis computer and instrument firm, and will direct all eastern operations of the firm from his headquarters in Washington, D. C.

John A. Rishel, Jr. has been appointed as general manager, merchandising, of the Consumer Products Div., Philco Corp., Philadelphia, Pa.

Pearl B. Morgan has been elected vice-president-administration of the Lion Match Co., Inc., Long Island City, New York.

Jerome S. Weiss, officer of Cory Corp., Chicago, has been elected to the board of directors.

William T. Clawson, director of advertising and promotion for Harris-Intertype Corp., Cleveland, has been named by Industrial Marketing magazine as "Industrial Advertising's Man-of-the-Year for 1958," in recognition of the high standard of quality and originality which he has maintained in advertising techniques.

Edwin F. Goldfuss and *Louis Castaldi* have been elected vice-presidents, and *Edmund T. Pratt, Jr.,* controller, of the IBM World Trade Corp., a wholly-owned subsidiary of IBM, New York.

J. Louis Reynolds has been elected vice-president and assistant to the president of Marquardt Aircraft Co., Van Nuys, Calif.

Fred Lachenauer, former director of

(*To page* 19)

Are Your Filing Methods As Fast as Your Machines?

ACME VISIBLE

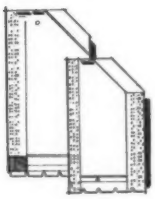
VERI-VISIBLE

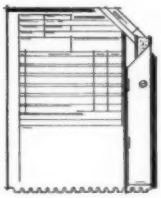
speeds the availability of source material for

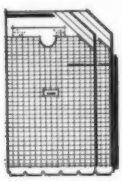
AUTOMATION

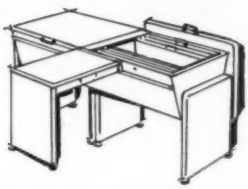
Filing edge-punched cards in Acme Veri-Visible units enabled a major manufacturer to realize a 20% savings in their customer order processing and billing routines. The immediate visibility of the cards in Veri-Visible cabinets, readily accessible and comfortably convenient, effects definite reduction in operator's fatigue.

Electronic machines produce punched cards and tapes at astounding speed. Once punched many become permanent records to be used over and over again. Acme Visible Records and equipment provide for filing and fast finding, with SEEABLE indexing speed handling of this material to keep pace with machines.









PORTABLE TRAY PUNCH CARDS TAPE CARRIER PUNCH CARD CARRIER EXPANDER CABINETS

ACME VISIBLE RECORDS, INC., Crozet, Virginia
Y-459

We are interested in filing

☐ Tapes (approx. length)_____
☐ Edge-punched cards
☐ I.B.M. Cards

_____ (Approx. number of records)

Company_____

Attention_____

Address_____

City_____ Zone____ State_____

Acme makes the most complete line of visible record equipment in the world. Let us show you how to save time, labor and money with an Acme Visible Record System designed to meet your specific requirements.

ACME VISIBLE RECORDS, INC.
Crozet, Virginia

District Offices and Representatives in Principal Cities

NEW E-Z START REAM OPENER

Only on EASTERN FINE PAPERS. Simple. Practical. Just lift the tab and pull. The ream of paper is open. No broken fingernails. No torn or cracked paper. Simplifies storage. Ask your local supplier – or write direct – for test packets.

ATLANTIC BOND • ATLANTIC DUPLICATOR • ATLANTIC MIMEO BOND • ATLANTIC OFFSET • ATLANTIC OPAQUE

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EXCELLENCE IN FINE PAPERS

EASTERN FINE PAPERS

EASTERN FINE PAPER AND PULP DIVISION
STANDARD PACKAGING CORPORATION • BANGOR, MAINE

Use Readers' Inquiry Coupon on Page 88

(*From page* 16)

purchasing for Venus Pen and Pencil Corp., New York, has retired after 50 years of service with the company.

Marion Heuer, interior designer and consultant, has been selected by the Steel Office Furniture Dept., of Remington Rand Div. of Sperry Rand Corp., Chicago, to create the interior design of large-area offices equipped by the firm.

Charles F. Scifres has been appointed treasurer and controller of The Soundscriber Corp., North Haven, Conn.

Alan S. Cook has been elected a vice-president of Royal McBee Corp., Port Chester, N. Y.

Peter M. Sarraiocco has been advanced to the position of secretary to the Management Advisory Committee of National-U.S. Radiator Corp., Johnstown, Pa.

Karl Siewert has been elected president of Facit, Inc., New York, succeeding *Erik A. Ohlsson,* who is retiring.

Books and Pamphlets

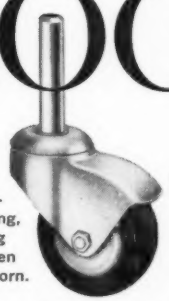
THE LANGUAGE AND SYMBOLOGY OF DIGITAL COMPUTER SYSTEMS, published by the RCA Srevice Co., Bldg. 210, Camden 8, N. J. $2.00. Originally prepared for the Air Force Cambridge Research Center as a reference for the interpretation of logic diagrams and technical descriptions, this 114 page book is now available for the commercial market. It explains many of the basic characteristics of computers and discusses such problems as Boolean algebra in practical terms.

EXECUTIVE SELECTION: HOW PSYCHOLOGISTS CAN HELP, prepared by graduate students of the Harvard Business School. Management Reports, Box 136, Cambridge 38, Mass. $12.50. 127 pages. A report based on intensive interviews with psychologists dealing with management problems as well as managers who have employed psychologists concerning executive problems. The book begins with the basic problem of finding a psychologist and follows the steps leading to the conclusions reached by management in its evaluation of the psychologist. It presents attitudes and techniques used by management and psychologists in dealing with the problem of executive selection.

SCIENTIFIC MANAGEMENT OF MARKETING OPERATIONS, by Al N. Seares. 35 pages. Research Div., Society for Advancement of Management, 74 Fifth Ave., New York 11. $1.50. This book surveys modern marketing concepts in their relationship to sales activities. It is designed to give management a scientific view of marketing operations.

WORK MEASUREMENT, by Virgil H. Rotroff. 203 pages. Reinhold Publishing Corp., 430 Park Ave., New York 22. Price, $4.85. Mr. Rotroff states in his preface that, "The purpose of this book is to present the fundamental principles and techniques of work measurement and their practical application to industrial problems of today." The book presents methods tested and used by management consultants in all phases of work measurement programs.

GOODLOOKING



Attractive metal thread guards optional—guard against string, threads, etc., getting caught between wheel and horn.

...this new one-piece hooded caster for office chairs

This is Bassick's new one-piece hooded caster, entirely new in appearance, with attractive lines that do not exaggerate its bulk, despite its very sturdy construction.

Incorporated here is the popular Bassick Diamond Arrow construction that assures easy swiveling, smooth rolling, long life. The smart ball race cover maintains the caster's clean lines and protects the swivel bearing from dust and dirt. The caster may be equipped with either Bassick's new, non-marking, stain-resisting soft rubber tread wheels ("Baco") or non-marking, non-staining hard composition wheels ("Atlasite").

Look for the new Bassick hooded caster at your dealers. Ask for it when replacing worn casters. 9.5

THE BASSICK COMPANY
BRIDGEPORT 5, CONN.
IN CANADA:
BELLEVILLE, ONT.

Symbol of SW Excellence — Bassick — A DIVISION OF STEWART-WARNER CORPORATION

Use Readers' Inquiry Coupon on Page 88

How PENDAFLEX® gives more miles to the gal

Simple. Hanging, sliding folders mean less work, more speed for every file gal. Finger-tip control of all folders increases a gal's file power, too... makes *any* file clerk a top octane performer. And exclusive Pendaflex "Keyboard" selection is geared for peak efficiency, new office economy.

Full details optional at no extra cost when you send for free File Analysis. Mail coupon today.

Oxford Filing Supply Co., Inc.
Garden City, New York

OXFORD FILING SUPPLY CO., INC.
11-4 Clinton Road, Garden City, N. Y.
Please send everything that is free...including File Analysis Sheet.

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FIRM_____
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Oxford
FIRST NAME IN FILING

LABOR AND ECONOMIC DEVELOPMENT, edited by Walter Galenson. 304 pages, John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. Price $6.75. This book is concerned with the evolution of democratic institutions at various stages of industrialization under a variety of social and economic conditions. Five specialists report on labor-management relations and economic developments in India, Japan, Egypt, French West Africa, and the British West Indies. The volume is one of a series from the research program of the Institute of Industrial Relations, University of California.

BRUNING FOR BUSINESS, A Guide to Paperwork Simplification. Charles Bruning Co., 1800 W. Central Rd., Mt. Prospect, Ill. Price, $6. A manual describing in complete detail, the application of the Bruning Copyflex system to business processing procedure.

CORPORATE RECORDS RETENTION, Vol 1, prepared by Robert B. Wheelan, Controllership Foundation Inc., 2 Park Ave., New York 16. $10.

This book, subtitled, *A Guide to U.S. Federal Requirements,* lists the general requirements of Federal agencies concerned with government contracts and negotiations. The report also indicates circumstances under which microfilm may be retained in lieu of original records.

HIGHER MANAGEMENT CONTROL, by T. G. Rose and Donald E. Farr. 290 pages. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36. $6.50.

Methods for getting a picture of where your business stands now, how it got there, and where it is going in the future are presented in this 21-chapter book. Essentials of sound management control, and therefore better decision-making, are pointed out by the authors in their efforts to demonstrate an effective way to install a control system; forecast sales accurately; simplify record-keeping; spot time-wasting procedures; delegate responsibilities; watch and control manufacturing and service operations; and combine sales, operating, and financial thinking. Designed for application to any type of business, large or small, the book contains 78 illustrations, including scores of forms and charts ready to use right from the page.

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Golden Dawn

A completely new, all-quality carbon paper for all-purpose use. The crowning achievement of 42 years of leadership.

A free sample is yours for the asking. See your Old Town dealer or write us.

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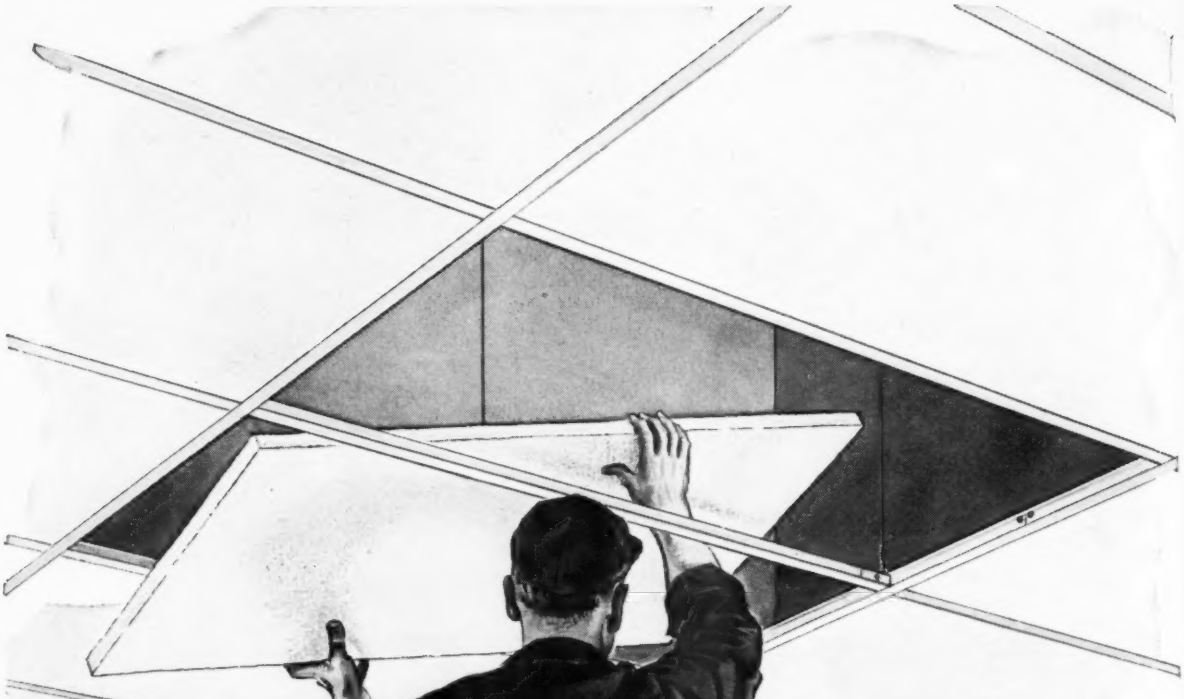

In noise control...the big news for 1959 is ***Panelglas—***

a product of JOHNS-MANVILLE FIBER GLASS

With L·O·F Glass Fibers Company joining the J-M family, your Johns-Manville acoustical contractor can now offer you Panelglas, the new "lay-in" ceiling panel made of J-M Fiber Glass.

Panelglas soaks up as much as 90% of the sound waves that strike it. Large 2 ft. x 4 ft. panels fit neatly and squarely into a simple suspended grid system. They are easy to put up—equally easy to remove for access to overhead fixtures. Panelglas panels stay smooth and rigid—make a handsome slightly textured, light-reflecting ceiling.

Quell distracting noise. Step up working efficiency. Put up a ceiling of sound-deadening, good-looking Panelglas. To get all the details, write to Johns-Manville, Box 16, New York 16, N. Y. In Canada, address Johns-Manville Company, Limited, 565 Lakeshore Road East, Port Credit, Ontario.

Panelglas joins the famous J-M Acoustical Products

- *SANACOUSTIC®*
- *PERMACOUSTIC®*
- *DRILLED MINERAL TILE*
- *FIBRETONE®*

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Use Readers' Inquiry Coupon on Page 88

Coming Events

Southeastern Personnel Conference. Durham, N. C., April 1-3.
Sponsor: Duke University.
Place: Duke University.

Annual Meeting and Convention of the National Microfilm Association. Washington, D. C., April 2-5.
Sponsor: National Microfilm Association.
Place: Mayflower Hotel.

NAA Regional Conference. Baltimore, Md., April 3-4.
Sponsor: National Association of Accountants.
Place: Lord Baltimore Hotel.

Life Office Automation Forum. Chicago, April 13-15.
Sponsor: Life Office Management Association.
Place: The Drake Hotel.

Southern California Business Show. Los Angeles, Calif., April 21-24.
Sponsor: National Association of Accountants, Los Angeles Chapter.
Place: Ambassador Hotel.

AMA Seminar: Personnel Record Keeping. New York, April 30-May 1.
Sponsor: American Management Association.
Place: Astor Hotel

NOFA 13th Annual Convention, Miami, Fla., May 1-3
Sponsor: National Office Furniture Association.
Place: Fontainebleau Hotel—Miami Convention Hall.

AREA Second Annual Records Management Conference. New York, May 8.
Sponsor: Association of Records Executives and Administrators.
Place: Commodore Hotel.

Third U. S. World Trade Fair. New York, May 8-19.
Sponsor: U.S. World Trade Fair
Place: New York Coliseum.

ORSA National Meeting. Washington D.C., May 14-15.
Sponsor: Operations Research Society of America.
Place: Shoreham Hotel.

IASA Annual Conference. Atlantic City, N. J., May 17-20.
Sponsor: Insurance Accounting and Statistical Association.
Place: Ambassador Hotel.

(*To page* 60)

with the EDITORS

WE think it interesting that, of this year's "Office of the Year" Award-winners (see page 34), one represents the suburban office, one the office clinging to the heart of the city. Joseph E. Seagram & Sons, Inc., has the most central of city locations, Midtown New York. Guarantee Mutual Life Co., on the other hand, not only has moved out into the suburban areas of Omaha, Neb.; it has started a trend in that city in which other offices are following the insurance company's lead, and are planning new offices near Guarantee Mutual's.

●

So, a trend which a few years ago seemed to many to sound the beginning of the end for the central city —and to many others a foolish and reckless move which would be regretted by every company that tried it—seems to have established itself without the results anticipated by partisans of either persuasion. Offices have continued to move to the suburbs, at the very time that their old city neighbors were planning ever-larger and brighter buildings right in the center of the city. The companies that have moved to the suburbs report continued satisfaction with their decision, the offices that decided on "downtown" are still certain they made the right move, or, actually, the right non-move.

●

All of which serves to make the lot of the individual office worker, which has improved so much on the score of convenience and comfort during the last twenty years, a little better still. If he or she wants to live in the suburbs, but loathes the thought of commuting, it's possible to have one's cake and eat it too. If the worker's a confirmed city dweller and worker, who dreads the thought of living and working in a rural environment, he faces no problems. There are still plenty of good jobs with good companies in the metropolis.

Meanwhile, even as the range of physical settings in which offices are established has expanded with the years, so too have the materials of which office buildings are constructed. New York, which has seen its first buildings sheathed in steel, aluminum, and bronze opened within the last few years, last month witnessed the opening of its first "skyscraper of glass."

●

There have been many buildings made virtually of glass before: Lever House was one of the first to use glass extensively; the "showcase" construction of the Manufacturers' Trust Co. Fifth Ave. offices reversed an entire tradition of massive and overwhelming architectural design for banks. Four major new buildings of the Corning Glass Center, at Corning, N.Y., are built almost entirely of glass, and two of them boast of a connecting bridge sheathed in glass.

●

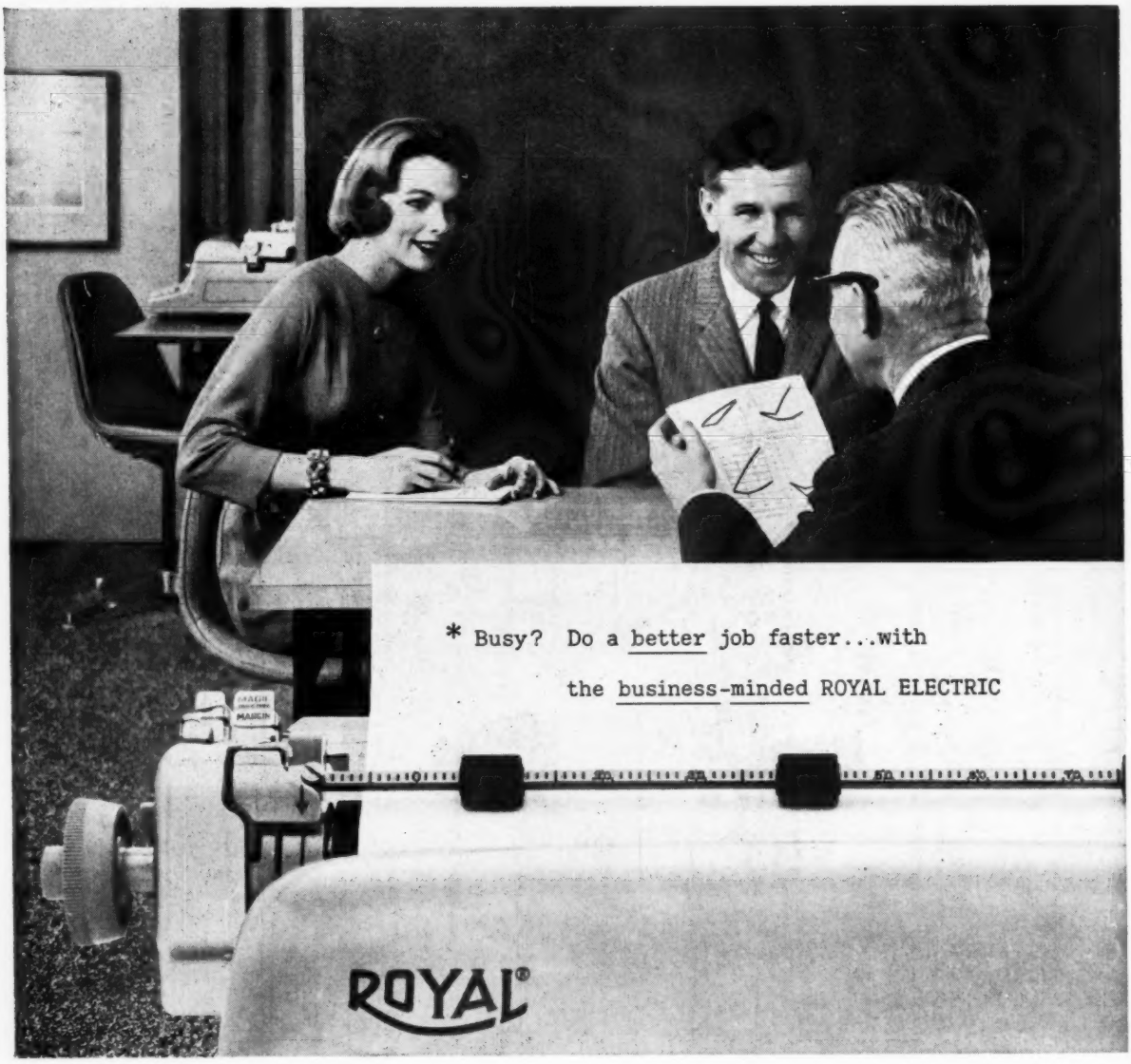
But the new building at 717 Fifth Ave., New York, which is also sponsored by the Corning Glass Co., uses glass more extensively than it has ever been used before in a commercial building. Twenty-eight stories tall, it is a true skyscraper, and its use of glass is not restricted to its facade. More than six miles of Fiberglas curtains are used within the building; where other buildings might have employed marble for lobbies or public areas, this one uses Carrara glass.

●

So the flexibility of choice for the new office recruit ranges farther afield than the decision between bustling city, and peaceful suburb. It's reaching the point where he'll be able to choose the individual facade which best suits him; traditional stone, rich bronze, vari-hued aluminum, or, if not an ivory tower, a crystal one.

Robert M Smith

Editor



NEW GUARANTEE! Famous Royal *reliability* is now backed by a unique *one-year* guarantee. And famous Royal *economy* means more work every hour . . . faster, easier, without fuss.

MATCHLESS REPRODUCTION! Choose the perfect type style for your own *special* business personality. You'll find a handsomely distinctive "trademark" among Royal's 74 distinguished type designs.

EASIER OPERATION! Exclusive Magic® Margin and Twin-Pak®—the instant-changing ribbon fingers never touch—spare muss and fuss, save time and cut fatigue.

FREE TRIAL, BETTER TRADE-IN! Call your Royal Representative for a free demonstration today. You'll find him listed in the Yellow Pages of your phone book. Your old typewriters are worth more than you think in trade.

Now guaranteed for a full year, there are already more Royal Typewriters in office use than any other make.

the business-minded **ROYAL®** *electric*

*GRAPHIC ELITE, one of 74 Royal type styles.

Product of Royal McBee Corporation, World's Largest Manufacturer of Typewriters.

Use Readers' Inquiry Coupon on Page 88

How one small agency cut costs, speeded paperwork without mechanization

Fund raising agency finds new system of controlling basic donor records eliminates paperwork backlog that formerly handicapped campaign efforts—

by Robert Shiff and Ralph E. Steere
President and Senior Project Director, Naremco Services, Inc., New York

A woman had mailed a donation three weeks earlier and was still waiting for an acknowledgement. . . .

An executive of a large corporation had made a sizable contribution five days earlier. His morning mail brought a solicitation letter reminding him to give. . . .

A volunteer fund raiser asked if a promised donation had been sent. He would not know for another ten days if it had been received. . . .

These seemingly unrelated situations all came to light on one morning as complaint memos on the desk of an official of a large charitable organization.

This progressive charitable organization processes more than 16,000 donations from some 13,200 contributors a year. Total contributions run in the neighborhood of $1,500,000 annually. Keeping track of, posting to, and updating donor cards, prospect lists, mailing lists, addressograph plates, etc. adds up to a complex paperwork operation.

To the official, a veteran welfare administrator, the three memos were a very real cause for concern. To him they meant that:

1. The processing of contributions was seriously bogged down—and this invariably would lead to the demand for additional clerical personnel to attempt to cut into the backlog of paperwork. Contributors were waiting too long for acknowledgements—a most serious problem from a public relations and future solicitation viewpoint.

2. The fund raisers in the field were not receiving information which they had to have quickly in order to follow through on their jobs. This meant that valuable contributions would be lost by inaction.

Taken together these conditions spelled one thing—that in the heat of the annual fund raising campaign, bottlenecks had developed in paperwork operations.

The executive decided that something had to be done and that these were the key questions which had to be resolved:

Was this a normal situation that had

After the new system was in operation, agency found it could handle half again as much paperwork as it had formerly, with less personnel

First result of the study was the revelation that tabulating equipment . . .

to be expected in a highly seasonal operation — and thus accepted and lived with?

Was the introduction of more and more personnel into the vortex of clerical operations the only possible answer?

Or could this problem be solved by remedial action and change?

The management of this welfare organization refused to accept a conclusion that nothing could be done. In the dynamic area of welfare work the acceptance of such a premise meant that in the coming years "paperwork strangulation" would limit contributions and thus limit operations.

Nor was management ready to accept the addition of personnel as the cure-all—it probably was just an opiate. Officials were aware that a very close correlation had always existed between the number of contributors and the number of processing personnel required. Historically, as contributors increased the number of personnel increased. This took on the aspect of a never-ending cycle. Every dollar spent in clerical overhead was a dollar lost to the needy. Commercial institutions could simply charge such overhead to operating expense which would in turn be reflected in profits. But in a charitable organization clerical overhead is reflected not in "profits" but in the welfare of people.

The third possibility was intriguing —could a basic change in operating methods and procedures speed operations and cut costs?

The decision was made. An attempt would be made to streamline paperwork operations. Naremco Services was called in to provide consultation and to help install needed changes and improvements.

At a preliminary meeting the following goal was set by management and consultants: "The development of a paperwork system that would not require additional clerical personnel if the volume of contributors were substantially increased."

"Personalized" note essential

It was stressed particularly that any system devised could not eliminate the "personalized" treatment of contributors.

It was decided at the outset that the project was to be undertaken in two separate phases. The first phase was to be a four week analysis and study leading to the development of specific recommended procedures along with a realistic forecast of benefits obtainable from adoption of the procedures. The second phase, after approval had been gained for these recommendations, was to include the complete installation of the program by the consultant. What was called for here was not just a voluminous report of a number of recommendations, but rather actually devising a plan, and then putting it into effect.

Based on our experience with over 300 of the country's major industrial organizations, we accepted this rather new assignment. The interesting question here was simply: Could the firm's specialized techniques in installing advanced methods in profit-making industrial concerns be adapted and installed in a non-profit, personalized, charitable organization?

The clerical operations staff consisted of twenty-five people who had the responsibility for processing and controlling records relating to 16,000 contributions received each year. These clerical operations were physically centered in a record room.

The survey was concerned mainly with the operations of the record room and all of its related clerical activities.

Basically the record room functions were to:

1. Receive and verify contributions.
2. Post the donations to the individual's donor card and subordinate cards and update the personal information contained on the cards.
3. Prepare a daily list of contributors for each fund raiser.
4. Acknowledge contributions.
5. File all correspondence relating to contributions.
6. Physically handle direct mail campaigns, maintain mailing lists, and maintain 23,000 addressograph plates.

The four-week detailed study, or Phase One was completed on the current procedures of the record room.

. . . would be neither necessary nor even practicable in terms of agency's needs

This fact finding study employed three basic approaches:

1. Functional Analysis: The flow of work was analyzed. Careful notes were kept on each operation. Each step in the procedure was given the "acid test"—whether the step was essential to the basic functions of receiving, posting, listing, acknowledging, etc. Slowly the "fat" in the operation began to reveal itself—some steps were functionally unnecessary, some steps developed information that was "nice to have" but not essential, and some steps represented unnecessary duplication. Finally, some steps could be streamlined and consolidated.

2. Interview Techniques: All personnel of the record room were interviewed. Each worker was asked to describe his job, asked for his suggestions on improvements, and made to feel that he was an important part of the project. One important result of these interviews was the revelation of the things employees *did not like* about the present operation. These remarks were not discarded as standardized complaints of employees but rather were carefully analyzed as important symptoms in the overall diagnosis that would eventually lead to the right remedial action.

3. Flow Chart Method: As a final step diagrammatical flow charts were developed to provide a graphic presentation of procedures. Combined with the functional analysis and interview technique, the flow chart highlighted obvious weaknesses and areas of waste in the present system and, at the same time, verified procedural steps which were necessary and efficient.

The first result of the study was the revelation that the generally held notion on the probable answer to the agency's paperwork problem was completely wrong.

Lurking in the back of many minds since the inception of the project had been the thought that many paperwork operations should be placed on tabulating equipment. The study developed that: "Complete machine application would not be sound at this time." The following reasons for this finding (especially since it reverses the current trend of solution by the "electronic panacea") are important:

Present and anticipated future volume would not warrant electronic machines.

The "personal touch" would be lost in donor relations.

Initial machine and conversion costs would be extremely high.

The degree of standardization with other sections, needed for efficient machine operation, did not exist.

Trained personnel were lacking.

Thus, all recommendations would have to be based on manual operations, a minimum of new office equipment and the simplification and standardization of existing procedures.

And, finally, the overall analysis also pointed out that there were 140 individual steps in the processing of contributions alone.

The first phase of the project was completed.

The survey—a management guide

The organization now had the facts. These facts gave a clear and detailed picture of what actually was happening in the present processing function. For the welfare officials this meant that personalities, contradictions, and masses of irrelevant data were cut away. Responsible personnel now had placed before them for the first time an objective, factual, narrative and graphic display on which they could make intelligent and sound management decisions.

The consultant was now ready to highlight what could be expected if the system were revised; even more important, management had a solid basis for evaluating recommendations quickly and intelligently.

If the recommended changes were made in present procedures, the report predicted that:

An increase of 40 percent in contributions could be handled with existing personnel.

The subordinate card files could be reduced in volume by 20 percent and the workload increased by 30 percent.

The amount of donor cards posted by an individual could be increased by 50 percent. (*To page* 80)

It pays to know printing techniques if a good forms control job is to be done

Proper printing specifications, knowledge of the type of work different kinds of equipment can handle best, can lead to substantial savings in creating business forms—

by Ray Marien
Forms and Procedures Manager, Olin Mathieson Chemical Corp., New York

WHEN WE consider the vast amount of money that private industry spends annually for forms printing it is quickly apparent that knowledge of forms printing is essential to any company. In fact the background, experience and ability of a company's forms control department will probably be in direct ratio to its printing bill for business forms.

The alert forms man looks constantly for new and better ways to procure forms. He realizes that ideas are everywhere and that by keeping his eyes and ears open he may come across something that can save substantial sums of money for his company.

Every form should be questioned when it comes up for reorder, not only from a systems standpoint, but from the printing point of view. It should be carefully analyzed to see if it lends itself to the latest printing techniques. For example, not many years ago most accounting forms were printed by letterpress on paper that had previously been pen-ruled by mechanical ruling devices, utilizing various colored inks. These forms were certainly attractive and easy to work on because of the multi-colored guide lines, but they had a significant drawback. They were expensive. Today, with the exception of blank, columnar pads they are nearing extinction in the forms field. New and less expensive methods have been developed to replace them with virtually no loss in attractiveness or utility. Screened lines and offset printing reduce what was formerly a two-stage printing operation to one pass through the press, with a subsequent substantial savings in printing cost.

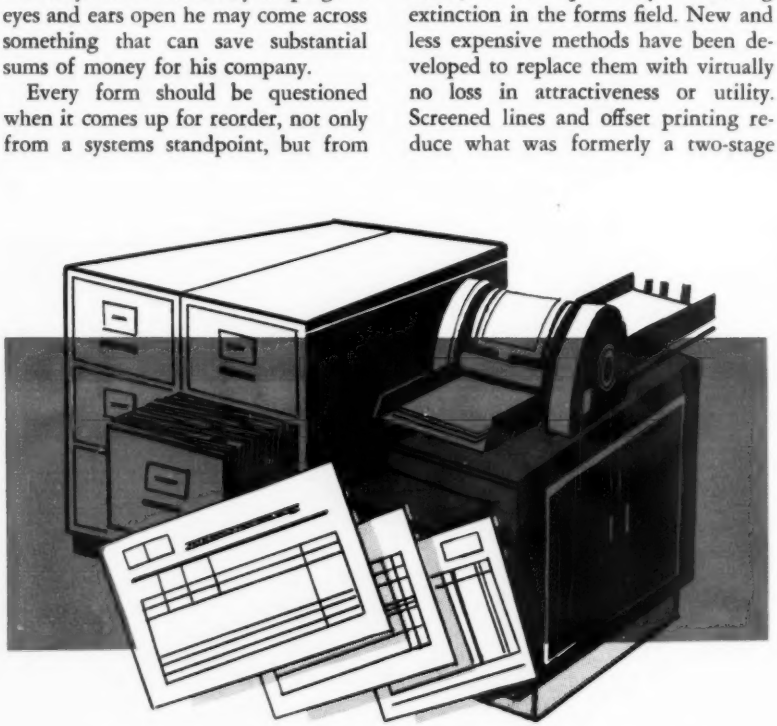
Also significant is the mere fact that proper printing specifications enable your printing buyer to obtain equitable bids. Neither he nor the vendors have to guess at what you want. You get what you specify and you specify down to the last comma in type and the last piece of carbon paper in a multi-part set. You eliminate the guesswork which is too often conducted on a "heads, I win; tails, you lose" basis.

Query the paper used

Knowledge of printing equipment pays off in the area of expensive, specialty-type forms as well as with the relatively cheap short-run kind. If you know the limitations of a fanfold press for example, it is possible to set up a large usage form specifically for that type of equipment. Once you do you have about the most economical form you can buy in the specialty field. But you must have certain features inherent in the form such as all one stock paper and a number of parts that coincides with the width of the press. A fanfold press prints two sides on one wide web of paper and later folds it fan-style into sets and accordion style into boxes of continuous forms. It derives its name because of this sideways, one-piece construction. It opens like a fan.

On the other hand, there are so-called "unit presses" available which are equipped to run snap-out forms in standard numbers of parts and sequence of colored stock. If you can fit your design and construction to that type of operation you get the most economical snap-outs possible, within their range.

Many forms are printed on needlessly expensive paper stock. A simple rule of thumb for a forms man is "Question the use, if the form is on anything but No. 4 sulphite stock." There are too many instances of forms subject to very little handling, being printed on rag content paper, or even heavy sulphite stocks, merely because



Savings can be achieved by using the office's own reproduction units

A SMART FORMS MAN CAN SAVE MONEY . . .

. . . before the form even goes to the printer, if he stops to question the use of the form down to the smallest detail, so that he doesn't overlook a single possibility for savings.

He questions the paper stock, both as to grade and color, the ink, the printing method, the carbons and the means of binding, whether it be a highly complex method or simple padded forms.

Beyond this, he should question the usage in two ways: Does the office really need every single part of a multi-part form—or can any part be eliminated; does it actually need as many forms as has been specified on the requisition?

By investigating all these aspects, the forms man not only proves his own efficiency; he can succeed in saving his company a substantial sum of money.

The paper on which forms are being printed should be checked very carefully; all too often forms are printed on needlessly expensive paper because someone liked its "feel"

someone liked the "feel" of the paper. There *has* to be a reason for variances in paper grade and stock from the standards you establish for most forms and the reason has to be a good one.

Print on one side when possible

We have seen a simple, slightly handled form being printed on rag stock in large quantities when a No. 4 sulphite would have been adequate. In addition, it was printed on two sides and the only thing it said on the back was "Explanation." All that was needed in that case was a note on the bottom of the face of the form stipulating that "Explanation, if necessary, should be made on reverse side." That saved printing the back of the form and cut the running time in half.

Remember also that colored paper is expensive two ways. First, in the additional cost of the stock, and second in the collating cost when you make it up in sets with other colors. There is a time, however, when there is only a slight difference between colored sets and all-white, and that is of course when the collating is reduced to a rapid mechanical operation as it is with continuous form web equipment. Here, the paper is simply interleaved in *rolls,* by having the large webs of printed paper unwound and rewound together on high speed collating units. Sometimes, as with unit presses, these are right at the delivery end of the printing press thus eliminating re-reeling and further reducing the cost by making one continuous operation out of the whole form printing and collating process.

Companies using hectograph systems can save money in the cost of these forms by running them internally. First, they can imprint their own masters provided they have letterpress printing equipment. If not, they can print the runoff sheets by offset and kiss-print the blank masters by the same method, in registration. Thus they will produce guide lines for typewriter fill-in. When the masters are run off they will leave the hecto impression on the preprinted run-off sheets. A definite advantage of this method, in addition to the saving gained by buying blank masters, is the fact that preprinted run-offs give you sharper forms than you get from complete hecto-masters where the entire image, form and fill-in, is printed by the spirit or chemical process.

Envelopes, too, offer savings

In the envelope field considerable savings can be made through judicious use of the proper weight of paper. Perhaps you are ordering your kraft and manila envelopes in 32 substance when 28# would suffice. The latter weight is certainly strong enough for most mailings in this kind of envelope. The same applies to white wove envelopes. Although a 24 sub-white is usually considered standard you might get by with a 20 sub for mass mailings, thus cutting down on the cost of the

A working knowledge of current postal regulations is an asset to anyone responsible for forms control

envelopes by decreasing the paper weight by one-fifth.

Perhaps you are also one of those who prefer lithographed envelopes, yet whose quantities are not large enough to make this sort of printing economical. Unless you can order in sufficiently large quantities so that the envelopes can be lithographed in large, flat sheets and then die-cut out, you had better switch to letterpress. Most envelope presses are geared to low cost rubber-plate imprinting of made-up envelopes. This is the most economical way for shorter runs.

There are a couple of other factors to bear in mind concerning envelopes. First, if you have a lot of obsolete envelopes because of address changes, you can always overprint them with a "To-From" grid pattern and use them for inter-office correspondence. This is far more practical than tossing them out because the address is incorrect. Many companies follow this practice. In fact some of them even salvage envelopes from incoming mail and use them for one-time internal mailers. Which proves that a dollar is a dollar regardless of the size of the company.

Eliminate unnecessary extras

The thinking forms man doesn't hesitate to venture afield somewhat and learn the latest postal laws and regulations. By so doing he might be able to save money for his company. An example of this would be the recent postal law change which permits booklet type matter such as catalogs, annual reoprts and so forth to be mailed in envelopes over 5½ by 11 inches (either way) *fully sealed,* at third class rates, without any special indicia on the front which might make it less acceptable to management. This does not lower the printing cost, but it *does* cut the mailing cost and that is equally important.

Sometimes the forms savings are so obvious they are easily overlooked. Consider the case of the company that insisted on having its own form numbers on everything. They discovered that this was a costly procedure because they had to pay extra for that privilege when they bought stock tabulating forms. When someone pointed out that these stock forms had to be rerun by the printer merely to put the company's form number on them, the practice was discontinued. Obviously the fact that these forms bore the printer's stock number instead of their own form number in no way impaired their usefulness. But it did cut the cost of the forms, for the company using them.

Always question necessity

Some continuous forms printers have bump fastening available on their forms instead of staples. This process punches a hole in the paper and utilizes the punched fragment or tongue, to hold the sheets together. As it does away with the cost of the metal in the stapling method, it saves money. As small as the metal cost is in a single staple, it adds up over the length of the printing run.

Actually a smart forms man should save money before the form even goes to the printer. He should question the use of the form down to the tiniest detail so that he doesn't overlook a single possibility for savings. He should question the paper stock, both grade and color, the ink, the printing method, the carbons and the means of binding, whether it be a highly complex idea such as snap-outs with die-cut carbons, bound in books or simple padded forms. Beyond that he should question the usage in two ways. First, does the office really need every single part of a multipart form? Each part he can eliminate is money in the bank. Second, does the office actually need as many forms as it has specified on the requisition? By maintaining complete histories on each form in his numerical forms file he will have the answer to that second question. Sometimes overordering can be costly, but more often than not it is just as expensive to under-order and run short of forms unexpectedly: If it happens to be an expensive specialty form where considerable lead time for printing is required, the buyer will have to pay a premium for rush delivery which sometimes doubles the cost of the form.

Thus, forms savings start the moment the requisition enters the forms control department and the alert forms man investigates every aspect of it looking for savings everywhere he possibly can—in the printing cost, in the mailing cost, and in the actual clerical cost of handling the form. All these add up to efficiency in the purchase of business forms.

NOMA will hold 40th annual conference and business show in New Orleans next month

Techniques of communications, work measurement, incentive plans for office workers will be discussed in three-day meeting; Mexican tour offered at conference close—

WORK MEASUREMENT, creation of incentive patterns among office workers, methods of increasing office productivity, the manpower picture through 1965 — these are some of the topics to be covered by speakers at the 40th International Conference and Exposition of the National Office Management Association, to be held in New Orleans, May 24-27.

The exposition, which will be held in New Orleans Municipal Auditorium, will remain open one day after the close of the conference on Wednesday, May 27.

All conference technical sessions and social events will be held at the Hotel Roosevelt, conference headquarters.

The conference program will open on Sunday, May 24, with a Chapter Officers' Council, at which representatives of individual NOMA chapters, and members of the organization's national staff will meet to discuss organization activities. Sunday evening, the traditional Chapter Presidents Dinner will be held.

Technical sessions will begin on Monday afternoon after the keynote speech, and the election of new national officers on Monday morning. Thomas J. Watson, Jr., president of International Business Machines Corp., will be the keynote speaker at this year's conference.

First afternoon speaker will be Dr. Alfred J. Cardall, Cardall Associates, Philadelphia, who will discuss "Building Incentives." He will be followed by R. C. Ludlow, of the RCA Victor Co., Ltd., Montreal, who will talk on "Office Machines — Solution or Problem," and M. J. Flynn, General Electric Co., Atlanta, who will cover "Making the Most of Your Paycheck." The last two talks will be given concurrently.

The pattern of concurrent sessions will be repeated on Tuesday, when the first two talks will be concerned with "Progress Through Communications"

(*To page* 79)

Computers are key to programming entire businesses, LaPierre tells AMA

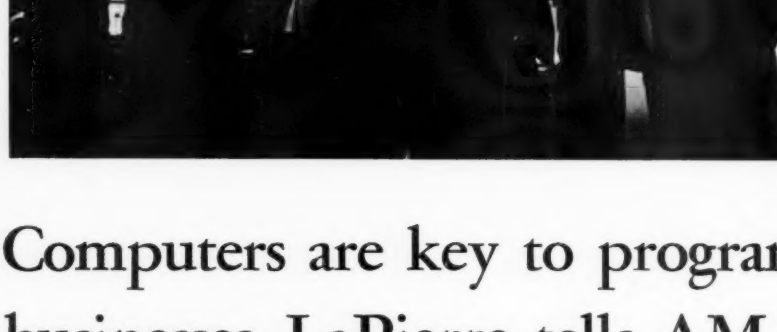


Exhibit of latest developments in IDP equipment was featured

Merits of buying, renting, sharing a computer, or using service center discussed on opening day —

ELECTRONIC DATA PROCESSING represents one of the most significant innovations in an era of technological advances, but it is limited by business' own lack of understanding of its needs and its problems, Cramer W. LaPierre, vice president, General Electric Co., told executives attending the Fifth Annual American Management Association Electronics Conference, held in New York March 2-4.

Until management has a clearer understanding of such relatively simple concepts as executive work and decentralization, he said in the opening talk of the conference, the computer's full potential as an aid to management cannot be realized.

Other opening day speakers and panel groups discussed the planning of an electronic data processing center for achievement of "progressive development" rather than "progressive obsolescence"; the advantages and disadvantages of buying, renting or sharing a computer, and using a data processing service center; and the effective use of automatic programming techniques.

Electronic data processing, like any other major innovation, is following a cyclical pattern, LaPierre said in the Monday morning talk, and recognition of the cycle is important in management's evaluation of the effect of electronic data processing on business.

"In its simplest elements, any innovation goes through a long period of early experimentation, development and application," he said. "This is followed by a period of rapidly rising use, and, in turn, by a gradual leveling off as the available applications begin to be satisfied."

However, he pointed out, no individual development follows quite such a simple pattern as this, and electronic data processing departs widely from it in many instances.

Early overapplication typical

"A more accurate description," he went on, "would apply the three phases of the innovation cycle to each new, different application. Nevertheless, the sum total of all applications will also more likely follow some such pattern, in which case there is another characteristic of the innovation cycle to which we should be alerted. This is the tendency to over-application in the early stages—reaching for applications not thoroughly understood or developed. There has been quite a bit of this in electronic data processing to date, and the process is far from completed. Managers can expect that all computer applications will not work out fully as expected without a considerable period of development of programming, equipment, or both, and concurrent delays in acceptable use."

Such delays and setbacks are inevitable in any new development, he declared. But, he asked, aside from these individual "growing pains" what does electronic data processing mean from the management viewpoint today?

"The computer and its derivatives are now being applied in quantity to eliminate the clerical drudgery of the office," LaPierre declared. "By this is not meant that computers can take over and substitute for manual office work. Such applications of computers are so rare as to be unimportant. They are succesfully applied after a restudy of all other routines of the office and converting them to a form of work which the computer is designed to handle. The full application of elec-

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C. W. LaPierre

Norman Oxley

Significant quotes from the conference

Cramer W. LaPierre, vice president, General Electric Co.: "Already the equipment available to us is far more complex than is needed for office routines or for factory machine operation, and for most engineering and scientific investigations . . . thus, this elaborate equipment points the way toward the use of electronic data processing for business operations not previously performed at all rather than as a substitute for personnel, effort and skill . . ."

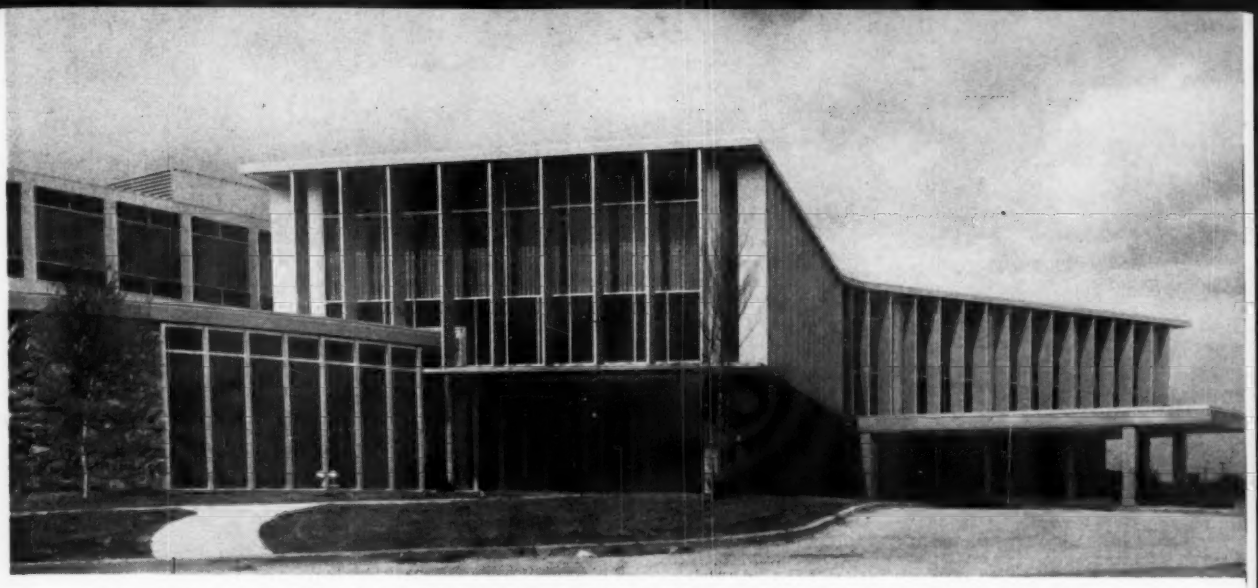
Norman Oxley, assistant controller, Allied Chemical Corp., New York: "We made all of the calculations of return on the investment (*computer purchase*) that we could think of. We made them with respect to single items, groups, and total equipment. In no case did we find that the return on the investment was sufficiently attractive to encourage us to buy anything. The rates of return which we expected were tested in the same way as we test all proposals for expenditures for plants . . ."

Office of the Year (for offices designed for 300 or more employees): Joseph E. Seagram & Sons, Inc., New York, New York.

Award of Merit (for offices designed for 300 or more employees): Eastman Kodak Co., Rochester, New York.

"Office of the Year" Award winners—1958

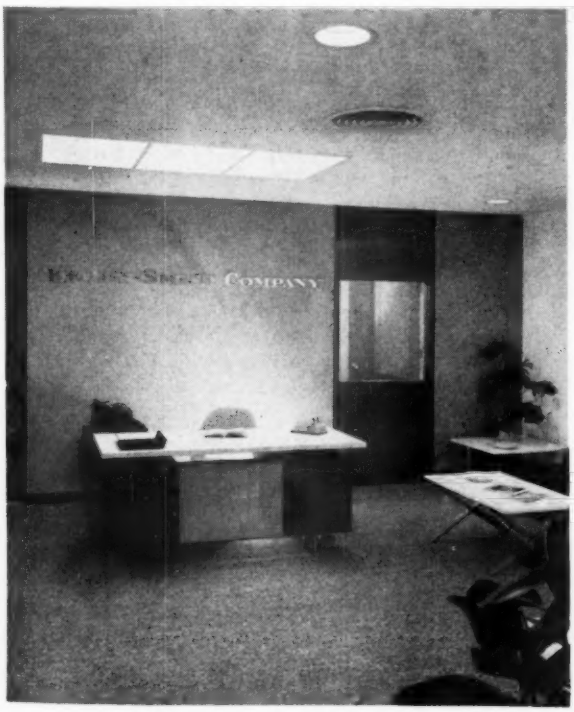
Award of Merit (for offices designed for 300 or more employees): International Minerals & Chemical Corp., Skokie, Illinois.



Office of the Year (for offices designed for up to 300 employees): Guarantee Mutual Life Co., Omaha, Nebraska.

PICTURED on these pages are the six offices selected by this magazine as outstanding among those opened in this country during 1958. They represent a merger of the best principles of good design and sound organizational planning: a combination which results in a physical setting which makes possible the most efficient office performance. Each of them embodies in every detail a thorough and intelligent understanding of all the needs, both present and future, of the modern office. We congratulate them all.

Complete picture and text stories on each of the Award-winning offices will appear in the May issue of *Office Management*.



Award of Merit (for offices designed for up to 300 employees): Kelly-Smith Co., New York, New York.

Award of Merit (for offices designed for up to 300 employees): Wachovia Bank and Trust Co., Charlotte, North Carolina.

First step in the system is preparation of a Part Requirement Sheet. Parts common to a group of orders are manually sorted out as shown, and tabulated. Inventory records are then posted for withdrawals.

Edge-notched cards, easily hand-sorted, solve manufacturer's inventory problem

Centralized controls, based on card records for components in each product, end production snarls, delays—

Related forms pertaining to any given order are prepared simultaneously.

A NEW inventory control procedure adopted by Racine Hydraulics & Machinery, Inc., of Racine, Wis., has helped the company to overcome bottlenecks that slowed down production and boosted costs. In addition, the new system has facilitated the accounting activities of the company, Robert Schrimpf, assistant controller, stresses. By way of example, he points out that sorting and tabulation for cost analysis have been simplified by the new controls.

The problem faced by Racine Hydraulics was a complicated one. The company manufactures a complete line of hydraulic equipment, including variable volume pumps, pressure boosters, fluid motors, and control systems. Also manufactured by the company:

portable hacksaws for the metal working industry, portable railway maintenance equipment, and standard and custom-built power units, together with all-hydraulic controls and piping.

Because of the great number of products, many of which are produced in numerous variations, Racine carries an inventory of 8,000 different parts. Frequently, components and tools required to complete a job were not available when needed. Production planning also was helter-skelter. This led to jobs being thrown off schedule.

Long-run setups often had to be torn down to accommodate an emergency short run. Because of these production snarls there were alternating periods of avoidable overtime and layoffs. As sales volume increased, deliveries lagged more and more.

Controls trace materials flow

Racine undertook to overcome this problem by instituting control procedures to keep track of the flow of all materials in the plant. For instance, it is not enough to provide an accurate inventory of parts in order to keep production moving steadily—if the repair department can make withdrawals from inventory without tying into controls.

While such withdrawals are relatively light, the shortage of a few components—supposedly in stock, according to records—can delay an important order. This simple example highlights the essential need for integrating all procedures. The new system set up by Racine does achieve the necessary degree of integration.

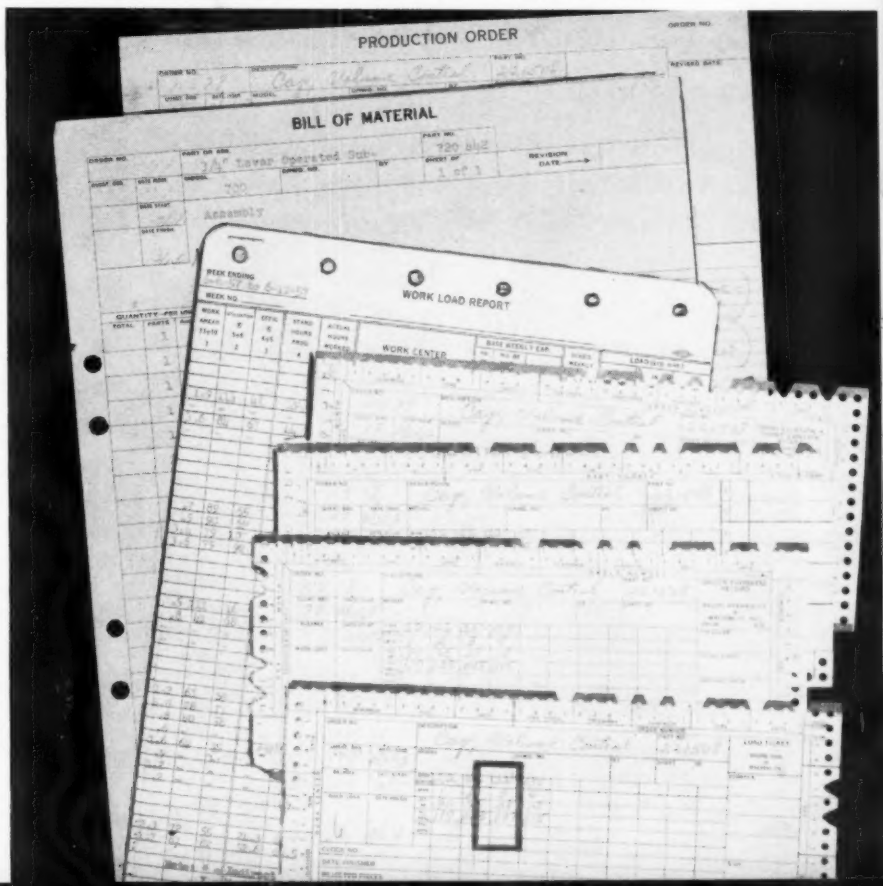
The first step at Racine Hydraulics is the preparation of a Parts Requirement sheet. When a factory order begins its routing in the plant, a number of related forms are produced simultaneously. They are: Production Order, Bill of Materials, Load Tickets, Order Progress Record, Direct and Indirect Labor Tickets, Identification and Count Control Tickets. Most of these forms are on Keysort marginal notched cards for subsequent sorting and tabulation of data into the reports which serve as controls.

Keysort cards have holes around the edge. Holes in the same position on each card are notched when the card represents the same attribute in a particular category. By the insertion of a stylus, or sorting needle, it is possible to separate cards in the same category

(*To page* 83)

Dispatch Center serves as operating headquarters of the plant. Load Tickets go directly to Dispatch Center, where they are filed by work center.

Figure 1. Marginal notched card forms, produced when a factory order begins its progress, simplify later sorting and tabulation of data for control reports.



"Transacter" ties production line to office; New electronic sorting unit introduced

A new data transmission system, designed to transfer information directly from individual production line workers to data processing centers, was demonstrated at last month's American Management Association Electronics Conference in New York by the Stromberg Time Corporation.

A pilot "Transacter" system is already in operation at the Naval Gun Factory in Washington according to Stromberg Time spokesmen, where it is used to feed manufacturing information to an IBM 650 computer.

The new "transaction-transmitter" system is based on two pieces of equipment—the "transacter," which is a unit to accept and transmit production information from individual workers, and the "Compiler," which receives data from several different transacters at remote locations, and records them on punched tape. The tape can then be used on various other machines to prepare necessary production records and statistics.

According to the manufacturer, as many as 50 different transacter units in various locations through a factory can be connected to one central compiler. Thus, reporting and recording systems of almost any size can be built by the addition of central compilers.

Typical examples of uses of the system as cited by the manufacturer are production or inventory control, determination of production unit costs, etc.

Under the system, individual factory workers themselves operate the transacter, which automatically transmits information to the centrally located compiler. As a man finishes a given job, for instance, he would record it in this manner:

First he would draw from his foreman punched cards carrying fixed data —the type of job performed, the machine on which it has been performed, the process employed and his identification number. Each card is inserted in a slot at the top of the transacter. Dials on the front of the machine permit him to enter variable data—the number of units completed on his machine, for instance. He then presses a "Transmit" key, and the punched card information, plus the variable information entered by the operator, and the time are transmitted automatically to the compiler, where all the information is recorded in the form of punched paper tape. Date and shift, as well as exact time of the transmission, are also recorded.

When questioned as to the feasibility of training production line workers to transmit data accurately on the machines, Stromberg Time spokesmen reported that the Naval Gun Factory has had no difficulty. Each of the cards to be inserted in the machine must be entered correctly in the right slot, or the machine will not function. The only mistake which the worker could transmit would be an incorrect recording of the variable data which he enters by knob controls on the front of the machine. Since the figures he enters there are recorded visually, on dials, he has a chance to check their accuracy before pressing the "Transmit" button.

John F. Carr, Stromberg Time executive vice president and general manager, said that accuracy and savings in time are the two most important advantages offered by the Transacter system. "The costly factor of human error in assembling and recording data manually is virtually eliminated," he reported, "and transaction information that sometimes takes days to gather

Stromberg Time's Transacter system consists of a transmitting unit (right) which transmits coded information entered by worker directly to central compiler (rear), which records it on punched tape for further processing

Burroughs' Magnetic Character Sorter is designed to handle checks coded on Magnetic Ink Character Recognition Principle at rate of more than 1,500 items per minute

can now be made available where it is needed immediately."

The new units are being offered by Stromberg Time on a lease basis: Compilers will be leased at $450 per month, transacters at $95 per month.

Burroughs introduces MICR program

Burroughs Corporation last month demonstrated for the first time its complete Magnetic Ink Character Recognition (MICR) program, designed to provide automatic methods of handling the average bank's increasing flood of deposit slips and other documents.

The Burroughs Magnetic Character Sorter, which sorts checks at a rate of more than 1,500 items per minute, is the nucleus of an entire complement of machines designed for the banking community, according to the company. Ray R. Eppert, president, described the new Magnetic Character Sorter as a "major breakthrough" in solving the biggest bottleneck in banking—sorting the thousands of checks and other documents that arrive daily from other banks, the Federal Reserve Banks, and clearing houses. With a rise in bank check processing from 10 billion in 1958 to an estimated 20 billion in 1970 the banks have been concerned with stabilizing costs against the increase of volume. According to Mr. Eppert, the Burroughs MICR program offers a solution to this particular problem.

Basis of the Magnetic Ink Character Recognition system is the common language principle, a unique series of numbers and symbols adopted by the American Bankers Association, which are imprinted in magnetic ink on checks and deposit slips. The numbers can be read by the human eye as well as by electronic machinery. Other machines in the MICR program include a Magnetic Imprinter, Magnetic Amount and Account Number Printer, Electric Accounting Machine, the Proof and Distribution Machine, and the Burroughs 205 and 220 data processing systems.

Burroughs spokesmen emphasized the fact that a banking pipe-line will be necessary for the complete operation of the MICR system. This means that the home bank will distribute to its depositors checks already imprinted with magnetic ink characters identifying bank number and depositor's account number. Such imprinting may be handled by the Burroughs Magnetic Imprinter. This machine is capable of coding up to 500 items within a matter of seconds; in a matter of minutes a depositor can be presented with personalized checks containing code numbers.

The Magnetic Character Sorter, placing the checks in proper order or sequence before posting, will free employees from tedious, time consuming tasks, Eppert said. The machine is capable of sorting 10 times as fast as a single person in the manual operation. Paper or card checks of varying sizes and thicknesses, as well as those that have been mutilated, may be processed through the sorter. Items can be intermixed and do not require jogging prior to being placed in the machine.

The appearance of the MICR program for the banking industry represents almost three years of planning, and testing in coordination with the American Bankers Association, according to Burroughs.

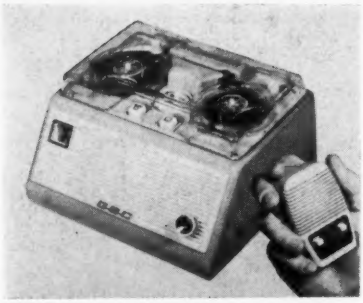
Education on computers urged

General Electric is working for more consumer "education on the capabilities and limitations of computers," George A. Hagerty, Marketing Manager, General Electric Computer Dept., declared at the formal dedication of the computer department's new headquarters and laboratory building in Phoenix, Ariz., late in February.

"Slightly more than 50 per cent of all computers sold during 1958 were general purpose," he declared. "It has been estimated that 66 per cent of all computers sold in 1968 will be general purpose. In this regard, one thing we are working for today is more education on the capabilities and limitations of computers. It must be realized that computers can be constructed to do almost anything. Most users don't need such a computer, nor are they in a position to spend that much money

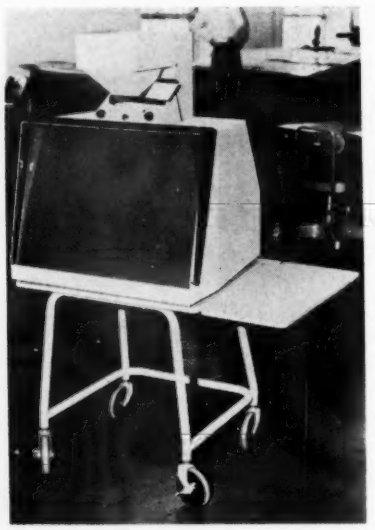
(*To page* 78)

New for the office



▲ Dictating machine **A-1**

Dictating and transcribing tape recorder features microphone with finger tip control for dictating, playback, start, stop, etc. The "Stenomaster" weighs ten pounds and may be equipped with foot pedal controls or keyboard push button control to fit under the front of the typewriter. 3½ inch reels provide more than 2 hours of playing time on magnetic tape. Price, $159.50. *GBC America Corp., 243 Broadway, New York 7.*



▲ Microfilm reader **A-2**

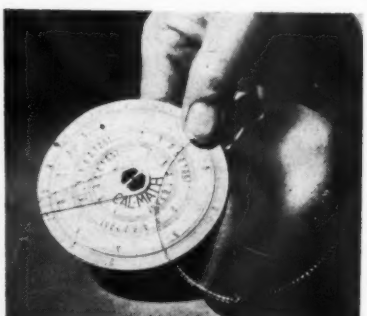
Designer "184" microfilm reader is designed for easy reading of microfilm engineering drawings mounted on punch cards or 3 by 5 inch cards. With a screen size of 18 by 24 inches the machine features a nominal magnification of 15 times, and a double electrical switch which automatically darkens screen when film card is removed. Price, $735. *The Filmsort Co., Div. of Miehle-Goss-Dexter, Inc., Pearl River, N. Y.*

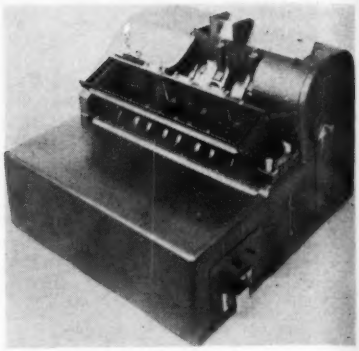
▲ Slide projector **A-3**

The Bell & Howell "Explorer" line of automatic slide projectors is available in four models priced from $79.95 to $179.95. A standard feature is the Micro-Mount slide holder which prevents slides from going out of focus or spilling from the tray. The machine is self-enclosed with handy carry bar making it easily portable. *Bell & Howell, 7100 McCormick Rd., Chicago 45.*

▼ Calculator **A-4**

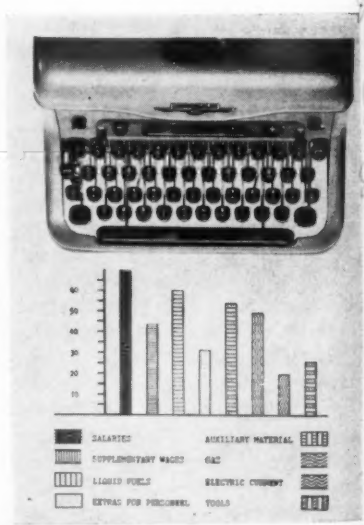
Simplified circular pocket calculator is designed for calculations to a thousandth. Anodized green and gold discs with large imprinted graduations permit easy reading with aid of plastic indicator. "Cal-Math," is priced at $4.95 complete with a plastic case. *The Cal-Math Co., P.O. Box 5536, Philadelphia 43.*





▲ Addressing machine **A-5**

"Duplicard Model E-22" automatic electric addressing machine handles a variety of mailing pieces at speeds up to 5,400 units per hour. The machine features a 22-inch envelope hopper and will handle widths down to 3 inches, and lengths from 5 to 14 inches; automatically feeds material as large as 40 page magazines. Duplicard prints from specially prepared 3 by 5 inch card, using the spirit process. *Duplicard Addressing Machines Co., 1010 E. Chestnut St., Santa Ana, Calif.*



▲ Chart typewriter **A-6**

"Chart-Typer" incorporates graphic symbols in standard typewriter key arrangement enabling typist to prepare charts. Keyboard has normal upper case alphabet and numbers but replaces lower case alphabet with 27 different chart symbols. Carbon ribbon attachment makes typed material ready for offset printing. *Continental Office Machines, Inc., 500 Fifth Ave., New York 36.*

▲ Executive chair B-1

The "Denver" executive swivel chair offers the following features: one-piece aluminum arch base, ⅛-inch aluminum tubing anodized frame, foam rubber cushions, vinyl-coated cloth upholstery, and adjustable height from 17 to 20½ inches. *Emeco Corporation, Hanover, Pa.*

▲ Punch card holder B-2

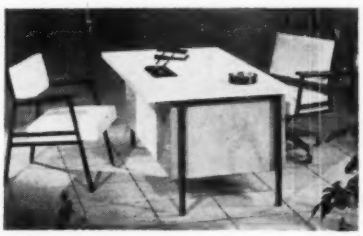
Plastic molded travel card holder is designed for use in conjunction with business machine systems. Eight riveted eyelets provide easy attachment to jigs, fixtures, or units traveling on conveyor belts. Two models are available, one accommodates 75 standard tabulating cards, the other holds 150. *Cowan Boyden Corp., 50 Aleppo St., Providence 9, Rhode Island.*

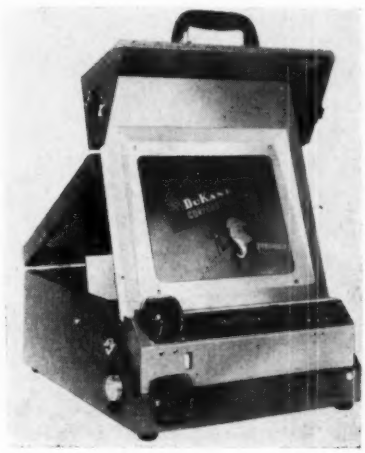
◀ Electric typewriter B-3

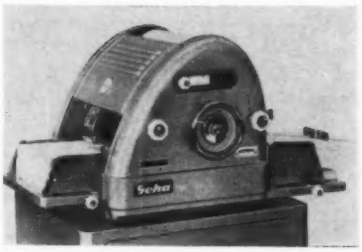
Electric typewriter features a longer carriage and writing line, muted carriage return, and individual touch control. The "executive" model, with proportional spacing, produces book-style printing in sixteen type faces. Machines are available in six decorator colors. *International Business Machines Corp., 590 Madison Ave., New York 22.*

▼ Office furniture B-4

1300 Series of "Flight Line" Furniture characterizes the modern architectural style. Basic functional properties are enhanced by colors of blue, yellow and red in a line of desks. Desk tops are available in wood or plastic laminate, in nine sizes. *Steelcase Inc., Grand Rapids, Mich.*







▲ Duplicating machine B-5

Oscillating inking system, variable speed operation, and lint removal system are a few of the features available in this new line of electric stencil duplicating machines. Model 200DA with automatic collator-interleaver produces copy on all types of papers, from airmail to cover weights. *Tempo, Milo Harding Co., 145 Tempo Bldg., Monterey Park, Calif.*

▲ Storage file B-6

Liberty "400" record storage file features spring lock closure, pull handle, and automatic locking bottom. Of one-piece construction, the file is available in letter and legal size, in full 24-inch capacity. *Bankers Box Co., Dept. OM1, 2607 N. 25th Ave., Franklin Park, Ill.*

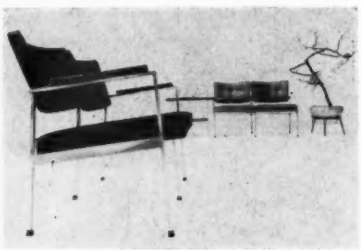
◀ Filmstrip viewer B-7

Self-contained film-strip viewer presents 35mm filmstrips in lighted room on built-in projection screen. Light in weight, the viewer closes into luggage style dustproof case for easy transportation. Snap-action manual advance permits viewing of individual frames. Model 576-48 is priced at $74.50. *DuKane Corp., St. Charles, Ill.*

For further information, use Readers' Inquiry Coupon on page 88.

▲ Punching machine **C-1**

Electric, desk-top punching machine provides punching power equal to four tons of pressure. Machine is driven by ¼ h.p. split-phase motor operating on 115 volts AC electric power. Styling includes green-gray wrinkle finish with black phenolic work top. *General Binding Corp., 1101 Skokie Highway, Northbrook, Ill.*



▲ Office furniture **C-2**

Line of office furniture with emphasis on modern simplicity, designed for the small office. Two-seated lounges, with or without arms, are 44½ inches wide with complete foam rubber cushioning; upholstered in fabric or top-grain imported leather. *The Robert John Co., 202 S. Hutchinson St., Philadelphia 7.*

▼ Storage cabinet **C-3**

Portable storage unit: walnut cabinet with sliding doors, mounted on large castors, provides two interior compartments, with dictaphone slide, and area for tray, shelf, or file drawer. Open units of same basic design can also be mounted on legs or castors. Model is available in a variety of durable top finishes. *Herman Miller Furniture Co., 18 E. 50th St., New York 22.*

▼ Dictating microphone **C-4**

"Miracle Mike" remote dictation system allows one recording-transcribing system to serve several executive desks. Each desk station controls stop-start, playback, and error corection by thumb control bar or push buttons. The unit may be wired directly or through existing telephone switchboards. *Scribe Distributors Co., 6949 W. North Ave., Oak Park, Ill.*

◀ Adding machine **C-5**

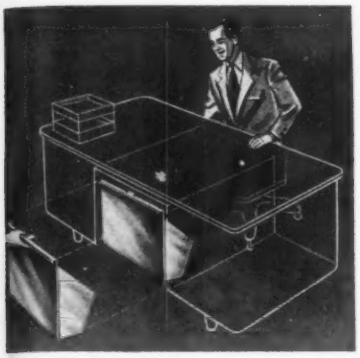
Ten-key, portable adding machine prints direct subtraction, totals and sub-totals in red. Other features include motorized non-add key, correction key, single and double spacing control, as well as single back space key. *Model 4189; R. C. Allen Business Machines, Inc., Grand Rapids, Mich.*

▲ Postal scale **C-6**

Pocket postal scale with 1959 first class and air mail rates indicated. "Postomatic" clips in pocket, is made of two-tone plastic and stainless steel. Price, $1. *Postomatic Co., 1549 Belfield Ave., Philadelphia 41.*

▼ Service cart **C-7**

Service cart for handling distribution of heavy inter-office mail is available in two sizes: 30 by 16 by 32 inches and 36 by 24 by 32 inches. Cart has stationary front casters with swivel rear casters; tubular steel push bar. Finish is green baked-on enamel. *Lyon Metal Products Inc., 12 Clark St., Aurora, Ill.*



▲ Disposal basket D-1

Wastepaper disposal basket attaches to the rear of desk as handy disposal unit. Easily installed, the Desk Back-Basket fits knee spaces 19 to 28½ inches wide and is manufactured in a variety of finishes. *The Prine Co., 734 15th St., N.W., Washington D.C.*

▲ Data punch D-2

The Victor Data Punch consists of a full keyboard adding machine which activates a tape punch. The punch produces a detail strip (receipt) for accounting data and a punched tape for digital computers and processors. *Victor Adding Machine Co., 3900 N. Rockwell St., Chicago 18.*

▼ Calculating machine D-3

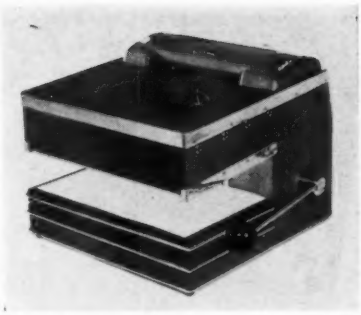
Electric, automatic "Transflo" calculating machine has a speed of 1,300 counts per minute. Intermediate answers to complex problems may be shifted instantly from one set of dials to another. Back transfer feature transfers, stores and recalls products, individual totals, intermediate results in any problem, etc. *Marchant Calculators, Div., of Smith-Corona Marchant Inc., 6701 San Pablo Ave., Oakland 8, Calif.*

◀ Tape recorder D-4

The "Midgetape Professional 500" is an all transistorized, high fidelity, battery operated tape recorder that fits in the hand. "Vu Meter" indicates recording volume and decreases distortion. Price, $32.50. *Mohawk Business Machines Corp., 944 Halsey St., Brooklyn 33, N. Y.*

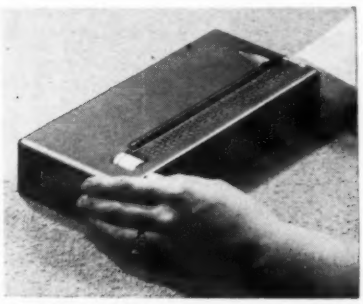
▼ Paper jogger D-5

Paper Jogger straightens any form of cards and papers prior to machine or filing use. "Syntron Jogger" features double bin capacity and is electromagnetically vibrated at a rate of 3,600 times a minute. Power is adjusted by a turn of the rheostat dial. *Syntron Co., 626 Lexington Ave., Homer City, Pa.*



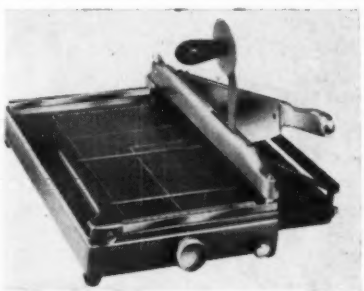
▲ Photo copier D-6

Dukuphot Book-Copier is one item in a line of photo-copying machines. The machine is designed for single sheet feeding, offset plate-making as well as book-copying; copies material printed in any color on either opaque or translucent paper in any office light. Price, $159. *Permarapid Inc., 320 Broadway, New York.*



▲ Tape dispenser D-7

Dispenser for linerless double-coated tape exposes an eight-inch strip of tape for quick direct application of paper. The taped paper is then pressed on whatever it is to be attached to: papers, photographs, or cloth swatches. Price, $8.95. *Minnesota Mining & Mfg. Co., 900 Bush Ave., St. Paul 6, Minn.*

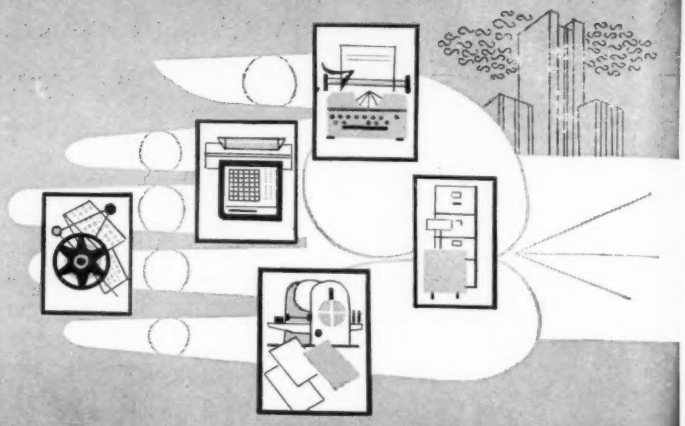


▲ Paper cutter D-8

"Kutrimmer," combination paper cutter and trimmer, cuts 50 sheets of paper in one operation. Clamping device allows precision cutting of unusual stock such as carbon paper or linoleum. *Michael Lith Sales Corp., 145 W. 45th St., New York 36.*

A Monthly Feature

Tools of the Office



Air Conditioning Equipment, Fans and Air Circulators

ONE HUNDRED years ago Jules Verne amused his readers by rocketing man to the moon in one of those "infernal contraptions." What was once laugh-provoking speculation has become, over a relatively short period of time, an increasing possibility. Technological advances have occurred with such rapidity in our century that a prediction concerning man's scientific advancement may become a fact before it reaches the reading public. Indeed it would not be surprising if before press time, a rocket careened blithely over the surface of the moon.

In the spirit of Jules Verne, science fiction writers of our day have imagined cities of the future encompassed in glass domes (similar to the structure of mythical *Atlantis*), where man will live within a climate of his own choosing. Such a city will maintain, among its many public services, a Department of Air Conditioning to keep constant watch over prevailing atmospheric conditions.

If the scheme sounds ridiculous or obscure we have only to realize that in our society a person may leave an air-conditioned home in the morning, travel by air-conditioned vehicle, and arrive at his daily job in an air-conditioned office. Such complete insulation among contemporary business men is, for the moment, not universal, but the idea of living and working under ideal temperature conditions is gaining acceptance as a standard in a prosperous American society. The "conditioned city" has already occurred under specialized circumstances. A completely air-conditioned aircraft carrier, or a factory spread over acres of land offering complete temperature control to thousands of employees is the possible forerunner of a future social application.

Air conditioning in offices is already pretty much of a standard — particularly in large offices. An *Office Management* reader survey last year indicated that more than sixty-five percent of the respondents had air-conditioned offices, and an additional twenty percent were planning to install air conditioning within the near future.

It is recognized that a great deal of modern office equipment operates efficiently only within narrow temperature and humidity limits. This is especially true of electronic equipment where a high quantity of heat output can be the source of machine failure. Punch card equipment has always been sensitive to extreme atmospheric conditions. In the case of machinery, air conditioning has been accepted as a vital link in operational procedure. By the same token most executives have become aware that well air-conditioned offices help cement employee relations, increase efficiency, and help to attract high-caliber personnel to the company. It has become a symbol of management's attitude toward the employee. Even if management does not particularly regard worker comfort as an essential part of business, it has learned that discomfort caused by heat and humidity affects worker efficiency. Companies concerned with work-lag during extreme weather conditions have found that proper installation of air conditioning has produced a worthwhile increase in efficiency *and* employee satisfaction.

Air conditioning manufacturers have reported that the average worker in a non-air-conditioned office loses one hour of productivity per day during extremely hot weather, and the argument is a sound one. In situations where an unusual amount of physical activity is required, the loss of productivity may be greater depending on the worker, the job, and the extremity of weather.

The conditioning of air in the office involves a variety of factors beyond simply cooling the room to a pleasant temperature.

Many factors affect comfort

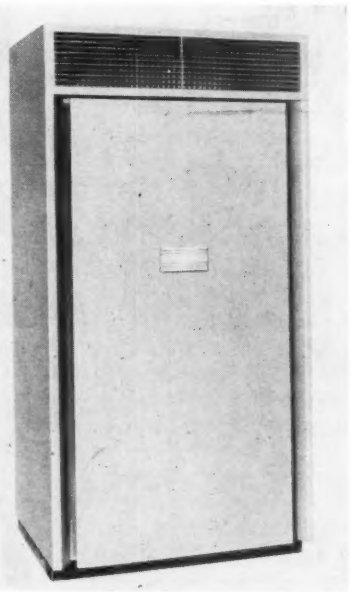
There are four major items involved in physical comfort in the office: (1) Temperature. (2) Relative humidity. (3) Air movement. (4) The dress and physical activity of those within the air-conditioned space. Most of the factors are self-evident once they are brought into focus. A person may dress effectively for activity in cold weather, but he has certain limits to face when making himself comfortable in an extremely warm temperature. Thus an artificial method is produced (analagous to the artificiality of winter garments) to allow maximum physical operation in warm weather.

The fact that relative humidity accounts for a great amount of comfort or discomfort is of major importance when dealing with *room conditioning*. The person who concerns himself with

the daily reports of humidity often forgets that his office is influenced by the same numerical prediction. A cool room does not necessarily mean a comfortable one. For instance, extremely hot temperatures in dry climates are not as uncomfortable as the same temperatures in a moist climate. It is therefore necessary for the person interested in conditioning the air of his office to pay strict attention to the problem of relative humidity.

The cooling effect of air movement is apparent from the slightest breeze on the hottest day. However, it is important to realize that cooling is only a by-product of air movement. Moving air absorbs body heat and removes body moisture. However, air can absorb only a certain amount of body moisture before it reaches a stasis: a point of saturation at which evaporation no longer occurs. When body moisture is not being conveyed by air movement and proper evaporation cannot take place, the body's "natural" air conditioning mechanism no longer functions.

An air-conditioning unit may produce disappointing results simply because it fails to move the cool air properly. Maladjusted or ill-sized units may cause cool air to collect in pockets where it remains motionless. Thermometers may record the proper temperature but lack of circulation causes worker discomfort. Such situations can generally be remedied by trial and error adjustment of louvres.



Many offices find the large package unit particularly suited for cooling expansive work areas. This air-cooled, self-contained unit is a product of the Curtis Mfg. Co., and is manufactured in sizes 3 through 7½ tons.

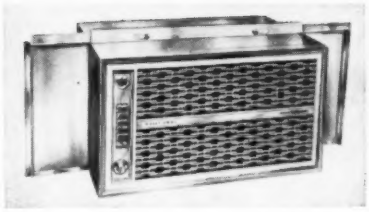
While it is true that correct air conditioning increases worker efficiency, it also presents some minor problems. There is often an employee who feels uncomfortable in the coolness or warmth enjoyed by a majority of workers.

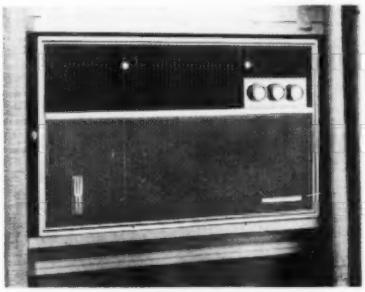
Employees often doubtful

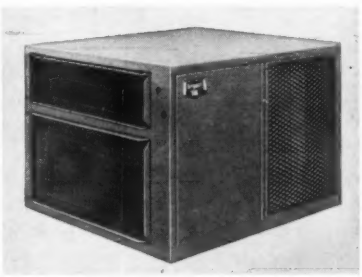
An employee might complain of the office temperature when natural weather of the same degree would prove perfectly satisfactory. Artificial conditions induced by the mere turn of the dial or flick of a button cause doubts in the minds of many. Rumors of health deficiency have often been circulated against air conditioning, and might have some basis if a particular office were badly equipped and regulated. Such criticism cannot be applied to the entire theory of air conditioning however. In most cases employee health records have improved in offices which have installed air conditioning. Apart from the average worker, those in critical health are often urged by doctors to spend as much time as possible in air-conditioned spaces.

Others find relief from allergies through the filtration of dust and pollen from the air. Naturally common sense dictates that a certain amount of caution should be exercised when one is working within air-conditioned spaces. For instance it is unwise for a heavily perspiring person to enter a chilled room abruptly. Likewise, a person who has been working in a 75 degree temperature feels the unnerving effect of emerging into a 90 degree afternoon. Whether the change from cool to warm is injurious to health has not yet been determined, although it is conceded to have a definite psychological disadvantage. A person suffering from hypochondria might look on the cooling unit as the source of recurrent symptoms or illness. In such a case it might actually be the dull ritual of Mary's job that becomes manifest in her physiology.

At any rate the problem is one which must be handled on the personal level and no amount of air conditioning adjustment will act as a personality cure. With this point in mind, we might also say that air conditioning properly







Package units designed for small office cooling are found in a variety of forms. The one ton model by Emerson (top) will fit practically any window by simple adjustment of built-in side panels. The Kelvinator (American Motors) window model below features compact 23-inch width with a 15-inch depth for little overhang inside of the room or outside of the building. The console model manufactured by Remington, is enclosed in an imported mahogany cabinet to blend with existing furniture. The Bryant air-cooled, self-contained unit (bottom) may be used centrally or as a remote unit cooling several offices.

Room Location	Kind of Exposure	Number of Persons Using Room	Type of Climate*	Room Size in Square Feet																				
				100	150	200	250	300	350	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
Rooms shielded from direct overhead rays of sun (i. e. rooms below an insulated roof or not on top floors)	Rooms with northern or eastern exposure or with walls shaded from afternoon sun	1–3	Hot	½	½	½	½	¾	¾	1	1	1	1½	1½	1½	2	2	2	2	2	2½
			Mild	½	½	½	½	¾	¾	¾	1	1	1	1½	1½	1½	1½	2	2	2	2
		4–6	Hot	¾	¾	1	1	1	1	1	1½	1½	1½	2	2	2	2	2½	2½	2½	2½
			Mild	¾	¾	¾	¾	1	1	1	1	1½	1½	1½	1½	2	2	2	2	2	2½
		7–10	Hot	1	1	1	1½	1½	1½	1½	1½	2	2	2	2	2½	2½	2½	2½	—	—
			Mild	¾	1	1	1	1	1½	1½	1½	1½	2	2	2	2	2	2½	2½	2½	2½
	Rooms with southern or western exposure not shaded from sun	1–3	Hot	½	½	¾	¾	¾	1	1	1	1½	1½	2	2	2	2	2	2½	2½	2½
			Mild	½	½	¾	¾	¾	1	1	1	1½	1½	2	2	2	2	2	2	—	—
		4–6	Hot	¾	1	1	1	1½	1½	1½	2	2	2	2	2½	2½	2½	2½	2½	2½	2½
			Mild	¾	¾	1	1	1½	1½	1½	1½	2	2	2	2	2	2	2	2½	—	—
		7–10	Hot	1	1½	1½	1½	1½	2	2	2	2	2½	2½	2½	—	—	—	—	—	—
			Mild	1	1	1	1½	1½	1½	2	2	2	2	2	2½	—	—	—	—	—	—
Rooms exposed to heat of sun from above (i. e. rooms on top floors without insulated roofing).	Rooms with northern or eastern exposure or with walls shaded from afternoon sun	1–3	Hot	½	¾	¾	1	1	1½	1½	2	2	2	2½	—	—	—	—	—	—	—
			Mild	½	¾	¾	1	1	1½	1½	2	2	2½	2½	—	—	—	—	—	—	—
		4–6	Hot	¾	1	1	1½	1½	1½	2	2	2	2½	2½	—	—	—	—	—	—	—
			Mild	¾	1	1	1½	1½	1½	2	2	2	2½	2½	—	—	—	—	—	—	—
		7–10	Hot	1	1½	1½	1½	1½	1½	2	2	2	2½	2½	—	—	—	—	—	—	—
			Mild	1	1	1½	1½	1½	1½	2	2	2	2½	2½	—	—	—	—	—	—	—
	Rooms with southern or western exposure not shaded from sun	1–3	Hot	¾	1	1	1½	1½	1½	2	2	2	2½	—	—	—	—	—	—	—	—
			Mild	¾	¾	1	1	1½	1½	2	2	2½	—	—	—	—	—	—	—	—	—
		4–6	Hot	1	1½	1½	2	2	2	2½	2½	—	—	—	—	—	—	—	—	—	—
			Mild	1	1	1½	1½	1½	2	2	2½	—	—	—	—	—	—	—	—	—	—
		7–10	Hot	1½	1½	2	2	2	2½	2½	—	—	—	—	—	—	—	—	—	—	—
			Mild	1	1½	1½	2	2	2	2	2½	—	—	—	—	—	—	—	—	—	—

* For the purposes of this chart, a "hot" climate is one in which the outdoor temperatures frequently exceed 95°. A "mild" climate is one in which the temperature rarely rises above 95°.

Many factors are involved in the proper evaluation of a space to be air conditioned. Since these factors are not always discernible to the inexperienced eye, it is advisable to share the problem of choosing the proper unit with an expert. However, the table above is designed to give a rough estimation of the compressor horsepower or ton capacity required for spaces up to 1500 square feet, under various prevailing conditions. Among those factors not indicated is the insular capacity of the building: whether or not heat passes readily through the walls, or is resisted by building materials or wall thickness.

installed will not automatically solve all of the office "ills." Sound control and color are as much a factor in making an office "pleasing," as is air conditioning, and must be given due consideration.

Choosing the proper unit

Many factors must be considered in making the proper choice of an air conditioning unit aside from human or machine considerations. A particular space cannot simply be measured and a unit capable of cooling that many cubic feet installed. Some spaces are naturally cooler than others. A cellar will remain cooler than an attic; rooms with northern exposure are cooler than those facing south or west. With heat variances from room to room, it is obvious that cooling requirements change with the amount of heat to be eliminated. There are numerous sources of heat in the office: the sun, body heat of workers, machinery and so on. Heat of course rises and passes from warm to cool spaces. If the heat in an office is turned off, the warmth will soon pass off through the walls to the outside air. Similarly, a cool room will be warmed by an increase of outside temperature. Thus, two new factors are introduced: the difference between the outside and inside temperature, and the ability of heat to flow from a warm to cool space. The latter may also be explained as the "insular" factor involved in retaining and expelling heat. The construction of the building, the thinness of walls, and the materials used (whether or not they readily conduct heat) determine whether or not the building responds quickly to changes in outside air temperature.

In a major air conditioning installation, the factors thus enumerated will be taken into consideration by engineers doing the job. Smaller offices may not consider the added expense of a consulting engineer feasible, thus leaving the choice of unit to a company executive. In this case a reputable dealer can be called upon to make an honest evaluation of the particular needs, and to recommend the proper unit or units. However, a recommendation submitted solely on the size of space to be cooled should not be accepted without further inquiry.

Equipment of the wrong size will result in a waste of time, temper, and money. Oversized equipment represents unnecessary investment in machinery that may not be productive. The larger the unit the more space required, and the heavier the initial and maintenance expenses. On the other hand, if an undersized unit is installed, the whole purpose of air conditioning is lost. It will probably give only spot cooling around the immediate area of the unit. It might also be necessary to run the unit constantly, making it more susceptible to failure.

It is therefore essential to make an accurate estimate of the size of the unit required. A warning must also be extended against overloading existing electrical circuits.

The table in this section is intended chiefly to indicate the nature of the problem. It does not allow for all the possible factors involved, and values given are only approximate in any case. It is always advisable for the prospective purchaser to share the job of selection with an expert. Several methods are used in measuring and denoting cooling capacity of any single unit. It is therefore necessary to say something about the scales used to measure cooling capacity.

Cooling power measurement

The British thermal unit (Btu) is the most accurate measurement available. It is used as a standard measure of heat and is also utilized as a measurement of heat loss. Technically, in terms of air conditioning, a British thermal unit is the amount of cooling capacity required to lower the temperature of a pound of water by one degree at sea level.

A machine which has a capacity of 14,000 Btu's may be taken as capable of dispelling 14,000 thermal units of heat per hour under normal operating conditions. In dealing with the general public, manufacturers often designate the cooling capacity of units in terms of tons or horsepower. Although these standards are reliable for measuring cooling power of small units to be used in standard rooms, it is not advisable to rely on them for complicated problems involving more than one room. A unit having one ton of cooling power is considered capable of cooling a space with the same effectiveness achieved by allowing one ton of ice to remain in the same room over a twenty-four hour period. By coincidence, a standard air conditioner with a one-ton rating requires a compressor motor of about one horsepower. Thus, the terms ton and horsepower are, in most instances, roughly interchangeable.

There are variations among units when ton capacity is measured against Btu output, and these variations become more pronounced as the size of the unit increases. However, it is generally conceded that a one-ton unit will dispel 12,000 Btu's per hour under normal conditions.

The small air conditioning units are generally referred to as "room air conditioners" and are designed to cool relatively small spaces. Most of these are the self-contained type; however, some are designed to work as distributing outlets for larger units of remote location. Small units rarely exceed two tons and may be purchased in a variety of styles suited for various functions. The "through-the-wall" unit is gaining prominence with the boom in office building construction. Contractors take the air-conditioning unit into structural consideration as they might take a window or door, thus making it an integral part of the building process.

They also provide the same amount of comfort without utilizing window space. Portable units are available, usually of the light, thin type, to be fitted into any window, and of course larger window units are also available. Small console models may be located in front of windows, at floor level, on walls, or in the ceiling. Large package units can be placed in open office areas or installed centrally, distributing air through ductwork.

Larger, non-package units must be installed by a competent engineer or architect since they often require structural accommodation and expensive ductwork or distributing outlets.

Heat must be exhausted

It must be remembered that heat is never destroyed by air conditioning, only removed. In ordinary window units the heat is simply exhausted into the outside air. In larger units it must be blown through ducts to the outside, or transferred to water which carries it off. If a system is installed in an area where the water supply is plentiful, the water used in cooling may drain into the sewage system. In areas where the water supply is scarce, the water is run to a tower where it gives off excess heat and is redistributed through the system. Manufacturers are now making larger air cooled systems to meet the limitations imposed by a lack of

abundant water supply in some areas. In the smaller units the trend seems to be to make lighter, more slickly designed units, while retaining, or adding additional cooling capacity. Units of one ton are now available in 115 volts with an amperage of seven and one-half, to avoid overloading existing circuits.

Various improvements in control design have been made with accent on thermostatic regulation. Such control is designed for more efficient and economical use.

Many units incorporate a reverse cycle heat pump as a source of quick warmth. By running the cooling system in reverse, heat is taken from the outside air and deposited in the space hitherto cooled. Enough heat is present in relatively cold air to make this heating source adequate for unexpected cold snaps, when it would not be economical to use the major heating plant.

Research with regard to the noise often associated with air conditioning has produced quieter fans and blowers and more adequate duct insulation. Among other improvements, new methods of air filtration have been introduced. Almost all air conditioning units, regardless of size, utilize a method of filtering dust and dirt from the air. In areas where dust interferes with the operation of delicate machinery, the filter is a necessity. Most filters are of the permanent type which may be easily removed for cleaning.

New systems of air filtration

Electrostatic filters are available on some models, and may be bought as separate units for independent operation or for use in conjunction with existing systems. Some filters of this type use a combination of an activated carbon filter and electromagnetic plates to relieve the air of dust, pollen and odors. One manufacturer includes a germ-killing device in the filter. Such an innovation may be of use in isolated cases, as in hospitals, but the average air-conditioned space needs a certain amount of healthful bacteria in the air.

Dehumidifiers are incorporated to some extent in every air-conditioning unit, and certainly, extraction of excess moisture from the air is as important as cooling it. In moderate yet moist temperatures, a dehumidifying unit will condition the air satisfactorily without the added expense of a cooling unit.

Fans and air circulators create a cooling effect by proper employment of the air motion principle. A fan requires an intake of fresh air with sufficient outlet for exhaustion of stale air. There is little advantage in having a fan circulate air through a closed room, since it will only circulate dust and saturated air. Some fans are equipped with timers, thermostats, or filters.

The list that follows includes manufacturers of air conditioners, fans, and air-circulating equipment. Wherever possible, a brief description of the product is given, based on the most recent information available from the manufacturer. It is by no means intended to include all of the features available in any one product.

The Manufacturers

Air Conditioning Equipment, Dehumidifiers, and Humidifiers

Abbeon Supply Co., 179 Jamaica Ave., Jamaica 32, N. Y. Humidifiers and Dehumidifiers: trade names, Abbeon, Walton, Dryomatic; price, $68.50 and up.

Admiral Corp., 3800 Cortland St., Chicago 47. Window models, air cooled: trade names, Admiral Ruler, and Coronet; size, 1 ton; both models portable. Thermostat, reverse cycle heating in Ruler line; Thermostat, push-button "climate control" in Coronet series. Price, $229.95 to $329.95. Console, air cooled: trade name, Regency; size, 1½, 2 tons; Thermostat, push-button "climate control"; price, $349.95 to $429.95.

Airtemp Div. See: *Chrysler Corp., Airtemp Division.*

American Blower Corp., Div. of American-Standard, Detroit 32. Package models, air cooled: trade name, American Blower; size, 4.3 through 17.5 tons; one- or two-row heating coils for use with steam or hot water. Package models, water cooled: sizes, 5 through 20 tons; one- and two-row hot water and steam coils available. Dehumidifiers: low- and high-pressure blow through sprayed coil type.

American Motors Corp., 14250 Plymouth Rd., Detroit 32. Window models, air cooled: trade name, Kelvinator and Leonard; size ½ through 2½ h.p.; line includes permanent and portable models; features available: reverse cycle heating, two directional cooling, electro-magnetic filter, thermostat, signal device indicates when filter needs cleaning.

Bryant Mfg. Co., 2020 Montcalm St., Indianapolis 7. Package models, air cooled: trade name, Bryant; size, 2.1, 2.8 tons; in- or outdoor installation; hermetic compressor, air-cooled condenser; prices, $578.00 to $810.00. Package model, split system: size, 2.0 through 5.2 tons; price, $550 to $1,520.00.

Carrier Corp., Syracuse 1, N. Y. Window models, air cooled: trade name, Room Weathermaker; size, ½ through 1½ h.p.; features available: reverse cycle heating, thermostat. Console, air cooled: trade name, Weathermaker Console; size, ¾ and 1 h.p.; Package models larger than room-size: air cooled; trade name, Weathermaker; size, 5 through 30 h.p.; water-cooled models also available.

Chrysler Corp., Airtemp Div., 1600 Webster St., Dayton 4, Ohio. Built-in-wall models, air cooled: trade name, Chrysler Airtemp; size, 1 ton; features available: temperature and humidity control, thermostat, heat adaptations. Window models, air cooled: trade name, Chrysler Airtemp; size, ½ through 2½ tons; features: directional airflow control, "climate minder" controls. Package models, air cooled: trade name, Airtemp; size, 3 through 90 tons; features, all-weather controls, instantaneous cooling, heat adaptation. Package models, water-cooled: size, 3 through 30 tons. Electrostatic filter unit available for forced air heating and cooling systems.

The Coleman Co., Inc., 250 N. St. Francis St., Wichita, Kans. Package models, air cooled: trade name, Coleman Polar Prince; size, 2 through 5 tons.

Cory Corp., 3200 W. Peterson Ave., Chicago 45. Dehumidifiers, portable console models: trade name, Fresh'nd-Aire; size, 1/5, 1/4 h.p.; features: maximum 5½ gallon removal capacity per 24 hours, automatic humidistat, filter, automatic shut-off control. Price, $99.95 to $159.95. See also fans.

Curtis Mfg. Co., 1905 Kienlen Ave., St. Louis 20. Package models, air cooled: sizes, 3 through 10 tons; used with warm air systems, remote cooling in-

Next Month:

Acoustical Materials
Floor Coverings
Movable Partitions
Overhead Lighting Equipment

Chrysler Airtemp electrostatic filter unit may be used with forced-air heating and cooling systems.

stallation; ceiling units available. Package model, water-cooled: sizes, 3 through 100 tons; for use with warm air heating units.

Dryomatic Corp., 806 N. Fairfax St., Alexandria, Va. Dehumidifiers: trade name, Dryomatic and Drymaster; household, commercial, industrial; automatic absorption type; capacities, 10 to 900 lbs. of water removed per 24-hour period; price, $124.95 to $6,500.00.

The Ebco Mfg. Co., 265 N. Hamilton Road, Columbus 13, Ohio. Dehumidifiers: trade name, Oasis; small caster mounted cabinet models in super deluxe or deluxe lines; humidistat.

Emerson Electric Mfg. Co., 8100 Florissant Ave., St. Louis 21. Built-in-wall air cooled models: trade name, Northwind; size, 1, 2 h.p.; reverse cycle heating, thermostat. Window models, air cooled: Northwind; portable, 1, 1½, 2 h.p.; thermostat. See also fans.

Emerson Radio & Phonograph Corp., 14th & Coles St., Jersey City 2, N. J. Built-in-wall models, air cooled: trade name, Quiet Kool; size, ½ through 2 tons; features, heating-cooling convector system. Window models, air cooled: trade name Quiet Kool; sizes, ½ through 2 tons; features, portable, easy installation, push-button controls, duo-filter system. Package models, water-cooled: trade name, Quiet Kool; size, 2, 3 tons; push-button controls.

Frigidaire Div., General Motors Corp., 300 Taylor St., Dayton 1, Ohio. Built-in-wall models, air cooled: trade name, Frigidaire; size, 1 ton; cooling only or reverse cycle heating. Window models, air cooled: trade name, Frigidaire; size, 1, 1½, and 2 tons; reverse cycle heating. Package models, air cooled: trade name, Frigidaire; size, 1.7 or 2.0 tons; optional hood for use without ductwork. Package models, water-cooled: trade name, Frigidaire; size, 3 through 15 tons; 2- or 3-ton unit is available for use with warm air heating system. Both horizontal and vertical models available.

General Electric Co. See *Hot Point Co., Div. of General Electric Co.*

Gibson Refrigerator Co., Div. of Hupp Corp., Greenville, Mich. Built-in-wall models, air cooled: trade name, Gibson "Trimline," size, 1 h.p.; reverse cycle heating, thermostat. Price, $179.00 to $399.95. Window models, air cooled: trade name, Gibson "Trimline"; 16 models from 1 through 2 h.p.; thermostat, reverse cycle heating, automatic air sweep.

Hotpoint Co., Div. of General Electric Co., 5600 W. Taylor St., Chicago 44. Window models, air cooled: trade name, Hotpoint; size, 1, 1½, and 2 h.p.; reverse cycle heating, thermostat, electrostatic filter; price $150 to $250.

Ilg Electric Ventilating Co., 2850 N. Pulaski Rd., Chicago 41. Built-in-wall model, air cooled; trade name, Ilg; size, 1½ tons; thermostatic control; price. $748.00. Package models, air cooled: trade name, Ilg; size, 1¾ tons to 3¼ tons; thermostat operates through existing ducts or as separate systems; $757.00 to $1,556.00. Cabinet type: room-size and larger, one to five tons; use with chilled or hot water; operated pneumatically, electronically, electrically, or manually; price, $145.00 to $629.00.

I. W. Air Conditioning Corp., 230 Manida St., Bronx 59, N. Y. Built-in-wall, air cooled models: trade name, In Wall; size, 1 and 1½ tons; cooling units utilize existing steam or hot water; price, $350 to $400.

Kelvinator Div., American Motors Corp., See: *American Motors Corp.*

Remington Corp., 171 Willey St., Auburn, N. Y. Built-in-wall models, air cooled: trade name, Wall Way; size, 1 through 2 h.p.; thermostat, optional electric heat. Window models, air cooled: trade name, El Dorado, Mark IV, Powerhouse; size, 1 through 2 h.p.; thermostat, optional electric heat; price, $289.95 to $439.95. Console models, air cooled: trade name, Consolaire; size, ¾ and 1 h.p.; thermostat, air freshener price, $399.50 to $504.50. Console, water-cooled model available with similar features. Also Incremental System units for use with steam, vapor, or circulating hot water systems. Line of dehumidifiers also available.

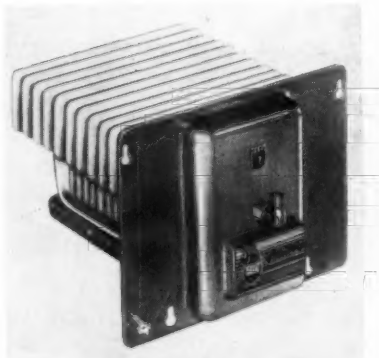
Spitzka Mfg. Co., 235 Colfax St., North Sacramento, Calif. Portable evaporation-type spot coolers, 6 models in Decorator Line, some equipped with stands; price, $29.95 to $79.95.

The Trane Co., Second & Cameron Ave., La Crosse, Wis. Package models, air and water cooled; trade name, Climate Changer; size, 3 through 30 tons; self-contained units for in-the-room or remote location 3-15 tons; commercial units for remote installation, 10, 15, 20 tons with water or air cooled condensers. A new line of cooling-heating equipment is expected in the near future.

Typhoon Air Conditioning Co., 505 Carrol St., Brooklyn 15, N. Y. Package models, air cooled: size, 2 through 20 tons; heat pump sizes 2, 3, 5, tons. Package models, water-cooled: size, 3 through 75 tons. Line also includes a number of through-the-wall air cooled units.

United States Air Conditioning Corp., P. O. Box 360, Delaware, Ohio. Package models, water cooled: trade name, usAIRco, Package-Aire; size 3 through 20 tons; self-contained units complete with built-in thermostat. Individual room heating and cooling units available: trade name, usAIRco Modu-Aire; size ½ to 2 tons; styles, recessed, free-standing, ceiling suspended, and hideaway.

Viking Air Products, 5601 Walworth Ave., Cleveland 2. Humidifier: Trade name, Aqua Magic; attachable unit for warm-air furnaces; vertical or sloping plenum.



The Viking Aqua Magic humidifier is available for use on warm air furnaces with vertical or sloping plenum.

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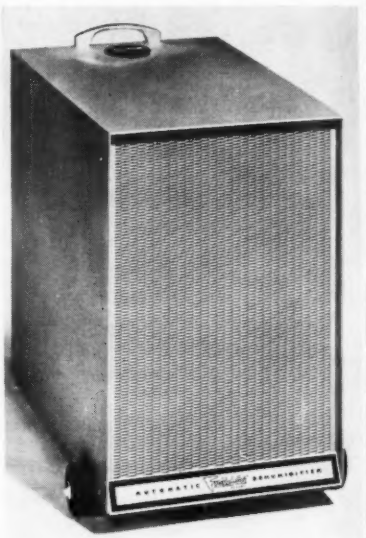
Valuable space can be conserved. Office operation costs can be reduced.

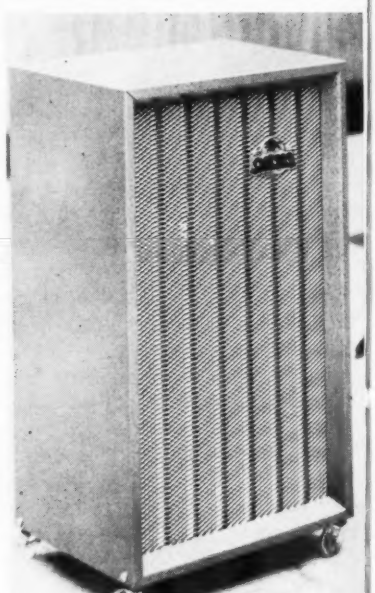
Use Readers' Inquiry Coupon on Page 88

Tools of the Office

(*Continued*)

Walton Laboratories, Inc., 1186 Grove St., Irvington, N. J. Humidifiers: trade name, Walton; table, space, console, or duct models; price, $68.50 and up.





Console dehumidifiers are compact and movable. Fresh'nd-Aire by Cory (top) and Oasis model by Ebco.

Readers wishing further information from manufacturers of products listed in the Tools of the Office section may use the Readers' Inquiry Coupon on page 88.

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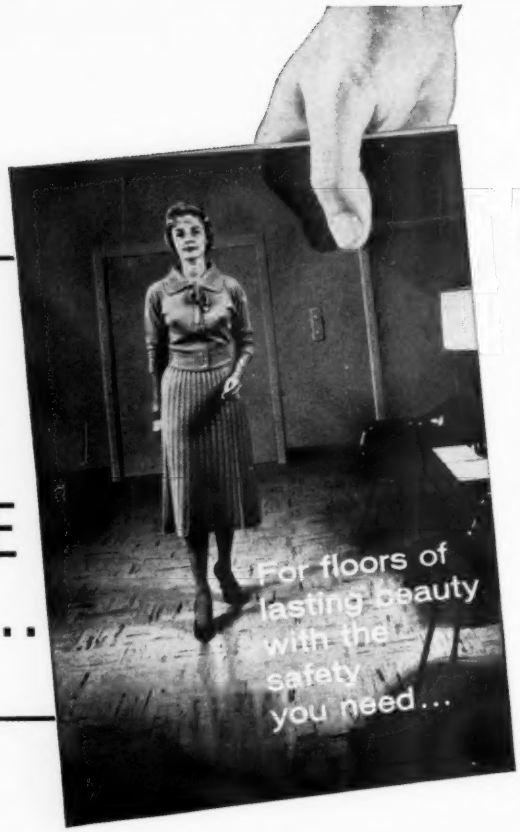

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Tools of the Office

(*Continued*)

Welbilt Corp., Maspeth 78, L. I., New York. Built-in-wall models, air cooled: trade name, Welbilt; size, 1, 1½, 2, h.p.; thermostat, two-speed fan; price, $179 to $299. Window models, air cooled: trade name, Welbilt; size, ½ through 2 h.p.; reverse cycle heating, two-speed fan.

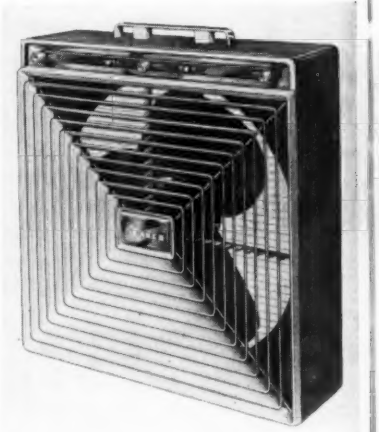
Westinghouse Electric Corp., Air Conditioning Div., Box 510, Staunton, Virginia. Current details not available at press time.

Fans and Air Circulators

Air Controls, Inc., 2310 Superior Ave., Cleveland 14. Trade name, Rex; 20-inch fans for window and wall; price, $39.50.

Cory Corp., Fresh'nd-Air Div., 221 N. La Salle St., Chicago 1. Trade name, Fresh'nd-Air, Mitchell; 20-inch, reversible, 3-speed fan in steel housing, automatic thermostat; price, $64.95. Window panel available for flush casement installation. 20-inch portable rollaway adjusts to floor heights up to 48 inches; price, $69.95. Also hassock, single, and twin models available; price, $49.95 to $59.95.

Diehl Mfg. Co., Finderne Ave., Somerville, N. J. Trade name, Diehl; reversible window ventilators; 20- to 24-inch; $49.80 to $69.95. Home and office fans, 12- and 16-inch; $31.75 and $49.25. Oscillating and non-oscillating circulators, $98.50 to $176.



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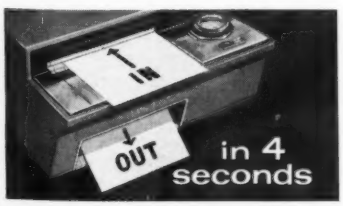

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Company_____

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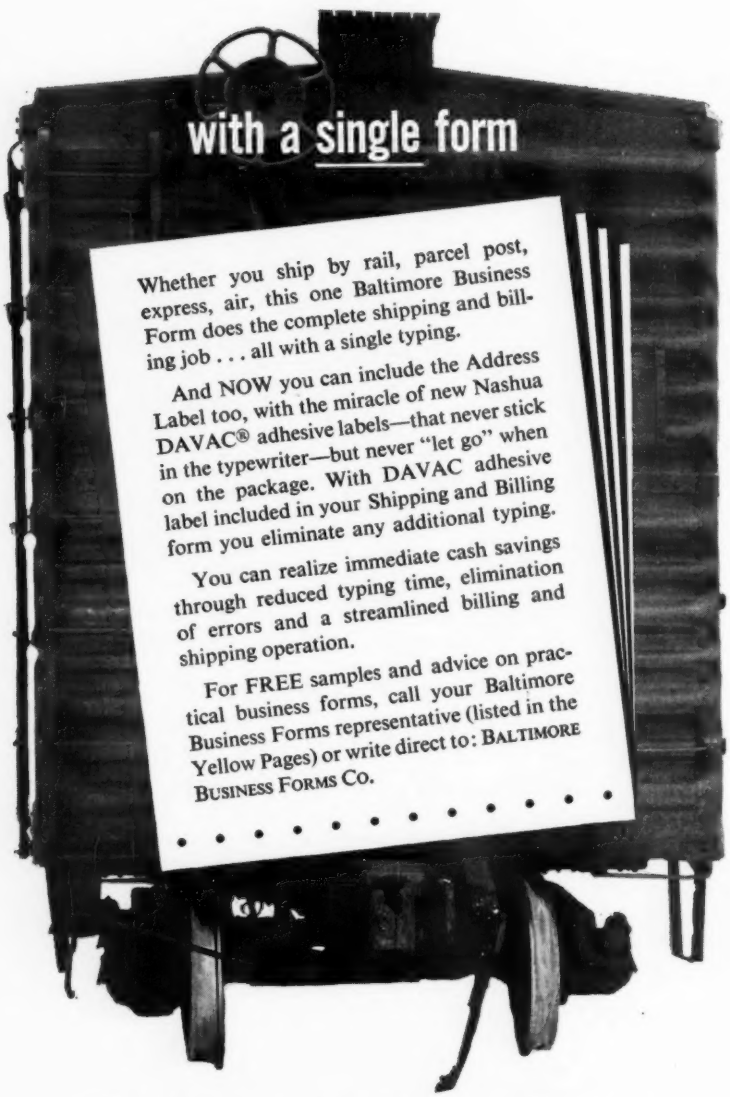
City_____ Zone____ State_____

SHIP and BILL



Whether you ship by rail, parcel post, express, air, this one Baltimore Business Form does the complete shipping and billing job . . . all with a single typing.

And NOW you can include the Address Label too, with the miracle of new Nashua DAVAC® adhesive labels—that never stick in the typewriter—but never "let go" when on the package. With DAVAC adhesive label included in your Shipping and Billing form you eliminate any additional typing.

You can realize immediate cash savings through reduced typing time, elimination of errors and a streamlined billing and shipping operation.

For FREE samples and advice on practical business forms, call your Baltimore Business Forms representative (listed in the Yellow Pages) or write direct to: BALTIMORE BUSINESS FORMS CO.

Baltimore Business Forms

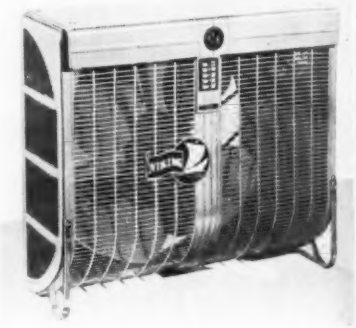
THE BALTIMORE BUSINESS FORMS COMPANY

3134 Frederick Avenue, Baltimore 29, Md.

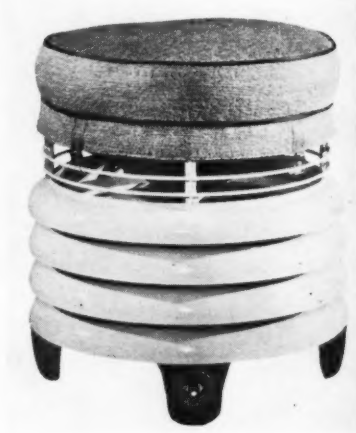
Use Readers' Inquiry Coupon on Page 88

Tools of the Office

(Continued)



Fans must be properly placed to allow a maximum of air movement. The Viking window model (above) features both intake and exhaust control. The hassock circulator by Kisco (below) affords a dual physical comfort.



The Emerson Electric Mfg. Co., 8100 Florissant Ave., St. Louis 21. Trade name, Emerson-Electric; window wall, low-table, oscillators, roll-about air circulators and ceiling fans; price, $12.95 to $165.40.

Fasco Industries, Inc., P. O. Box 509, Rochester, N. Y. Trade name, Fasco; 20-inch, reversible, three-speed fan, in metal frame; three models available in this line, some with thermostatic control. Also adjustable floor fans, hassock table, and oscillating fans available. Other window units available.

Readers wishing further information from manufacturers of products listed in the Tools of the Office section may use the Readers' Inquiry Coupon on page 88.

FIGUREWORK PRODUCTION UP

CASH OUTLAY DOWN

. . . when you take advantage of a MARCHANT installment or lease plan

Here are practical, *visible* results of putting Marchant calculators and adding machines to work under your choice of five installment and lease plans:

1. Speedy reduction of your figurework backlog. 2. Shortened output time for your regular figuring day in and day out. 3. New time for needed figuring that you have never been able to get around to. 4. Small initial cash outlay and low monthly payments, both allowing you to save cash reserves for timely use.

You can choose from three "Pay As You Save" plans—monthly payments for 6, 12, or 18 months—to own the machines you need. Or, you can have constant use of machines under a perpetual lease or lease with option to buy.

For information about the Marchant equipment and plan that will give you maximum figurework and cash advantages, call any Marchant office or send the coupon.

AS LITTLE AS $23.75 A MONTH

puts a new Marchant calculator to work for you right away . . . and it's only $18.00 a month for the Marchant 10-key, electric adding machine.

See how typical firms are now using the Marchants they needed, by taking advantage of installment and lease plans

6 MONTHS PLAN

Chosen by a wholesale grocery house when it was ready for two more Marchant ***Figurematic*** calculators to handle the mounting figurework required in serving its growing list of accounts.

12 MONTHS PLAN

A general contractor is buying a Marchant ***Deci-Magic*** under this plan. The model was chosen for its features that make estimating and other complex figurework easier, faster and 100 percent decimal-safe.

18 MONTHS PLAN

Selected by an electrical distributor that wanted another Marchant ***"Twin-Set" Figurematic*** for multiplying items by prices, getting each extension and the accumulated total simultaneously—in a single automatic operation!

PERPETUAL LEASE

(Monthly Rental Payments)

A small manufacturer prefers this means of acquiring a new Marchant ***Figuremaster.*** He has modernized his equipment and at the same time is conserving his limited working capital.

LEASE WITH OPTION TO BUY

(Monthly Payments)

A retail chain has put in 10 Marchant ***Retail Specials*** on this basis, for daily figurework and on-store inventory. ***Retail Specials*** multiply quantity by price, deliver individual or accumulated total ***during actual entry of price.***

12 MONTHS PLAN FOR ADDING MACHINE

This is how a real estate and insurance agency is buying its Marchant Adding Machine to improve customer service and streamline bookkeeping.

MARCHANT CALCULATORS

Division of SMITH-CORONA MARCHANT INC.

OAKLAND 8, CALIFORNIA

Modern Management Counts on Marchant

MARCHANT CALCULATORS, OAKLAND 8, CALIFORNIA

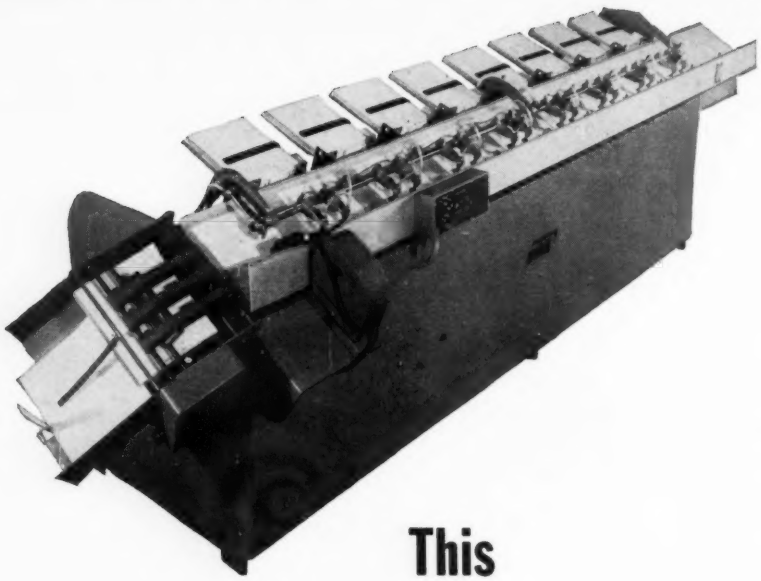
Please send us more information on Marchant's

- ☐ "Pay As You Save" plans (6, 12 and 18 months)
- ☐ Perpetual Lease Plan
- ☐ Lease With Option To Buy

E-4

NAME _____

PLEASE ATTACH COUPON TO YOUR BUSINESS LETTERHEAD



This MACEYMATIC is the LOWEST PRICED fully automatic vacuum feed collator

If your office prepares multi-page reports, catalog sheets and similar material at frequent intervals, MACEYMATIC can save you money.

1. It does the work normally requiring as many as eight girls.
2. It frees your clerical help for other duties and relieves them of a tedious, exhausting job. (Often done at overtime rates.)
3. Since the machine is fully automatic, it's fast, errorless and inexpensive to run.

Pays for itself in a few months . . . Hundreds of users, such as insurance companies, distributors and other types of business, have bought Macey collating machines. Many of them have paid for themselves in a few months.

We'll show you how . . . Get in touch with us and we'll make a quiet survey of your collating needs. You'll see how your company can easily afford a MACEYMATIC . . . and how quickly it can pay for itself out of savings. Complete details on request.

HARRIS INTERTYPE CORPORATION

MACEY COMPANY

A Subsidiary of Harris-Intertype Corporation

13835 Enterprise Avenue, Cleveland 35, Ohio

Use Readers' Inquiry Coupon on Page 88

Tools of the Office

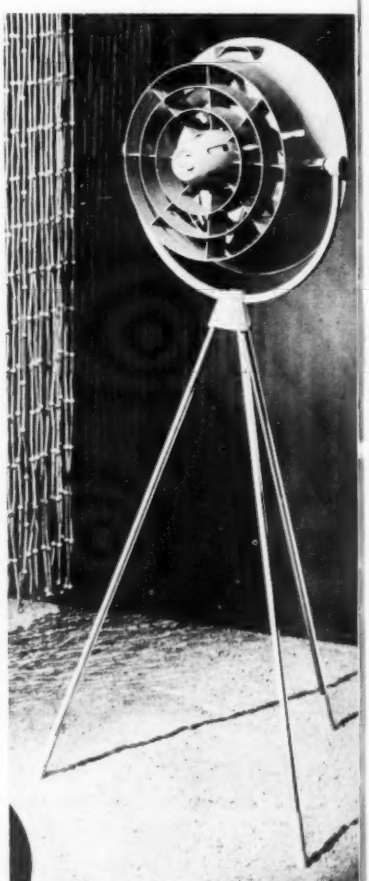
(Continued)

Fresh'nd-Aire Co., Div. of Cory Corp. See: *Cory Corp., Fresh'nd-Aire Div.*

Hunter Fan & Ventilating Co., Div. of Robbins & Myers, Inc., 2500 Frisco Ave., Memphis 19, Tenn. Trade names, R&M, Hunter; 20-inch, two-speed, portable fan in deluxe and standard models. Window panel available. Also hassock, desk, rollaway, and ceiling fans; price, $29.95 to $154.

Ilg Electric Ventilating Co., 2850 N. Pulaski Rd., Chicago 41. Trade name, Ilgjet; complete line of ceiling fans, also pedestal and wall models; price, $123 to $492.

Kisco Co., Inc., 2400-40 DeKalb St., St. Louis 4. Trade name, Circulaire: Hassock-type air circulators from $39.95 to $47.95. Trade name, Coolator; 20-inch, two-speed, reversible, portable window fan. Price, $44.95.



The R&M-Hunter on tripod features 360 degree tilt adjustment.

B. E. WYNNE, Controller, Western Maryland Railway Co.

CONTROL AT WESTERN MARYLAND

"Moore forms help our ore trains roll 6 hours sooner"

A new automated system at Western Maryland Railway's Port Covington ore terminal speeds paperwork, cuts copying errors, and reduces five forms to two. In the past, handwritten records of each car's tonnage were carried half a mile to the agent's office, totalled and recopied, and carried more than another mile to the yard office before the train could depart.

Now, as the cars are loaded, the weighman records the tonnage on a teletype unit in the loading crane. This simultaneously generates, in the yard office, punched tapes containing variable information about the cars. Combined with constant data tapes, this tape is used to print the Waybill. A complete set of Waybills is handed the conductor minutes after the last car is loaded and coupled in place. At its destination, each car is delivered with the consignee's copies of the Waybill, his 'pre-written receiving memos'.

A by-product tape picks up all data from every Waybill, and is used to prepare the Shipping Statement. This combines on a single form Shipping Notice, Weight Certificate, Freight Bill and Blanket Waybill. Derived from the original tapes, it is certain to be accurate.

"The help of the Moore man and his facilities were valuable in working out the forms we needed," said B. E. Wynne, Controller for Western Maryland and designer of the system. The forms are a 5-part Moore Speediflo Waybill and a 2-part Moore Speediflo Statement. They are Western Maryland's control in print.

If you would like a copy of the illustrated booklet giving details of this system, with a flow chart, write to the Moore office nearest you. No obligation, of course.

MOORE BUSINESS FORMS, INC., Niagara Falls, N. Y.; Denton, Tex.; Emeryville, Calif. *Over 300 offices and factories throughout the U. S., Canada, Mexico, Cuba, Caribbean and Central America.*

MOORE

Build control with

MOORE BUSINESS FORMS

Tools of the Office

(*Continued*)

Phil Rich Fan Mfg. Co., Inc., 2900 Caroline St., Houston 4. Trade name, Windmaker; Circular fans, 10 to 24 inches, from $19.95 to $69.95; all-purpose circulator, table, wall, pedestal, and window fans.

Radex Corp., 2076 Elston Ave., Chicago 14. Trade name, Dustronic; electronic air cleaner; aluminum, activated carbon, and electrostatic filter plates are three principles involved. Available in self-contained portable units, as part of central heating or air-conditioning unit, or in separate commercial size.

The Stratfield Co., 434 Grand St., Bridgeport, Conn. Trade name, Lite Tite; special fan for photographic darkrooms; price, $24.50.

Superior Electric Products Corp., 1507 Independence St., Cape Girardeau, Missouri. Trade name, Super-Electric; table or wall fans; 8-, 10-, and 12-inch oscillating; price, $6.25 to $17.95. Window fans: 3-speed, thermostat available, 16- and 20-inch; price, $33.95 to $44.95.

Viking Air Products, 5601 Walworth Ave., Cleveland 2. Trade name, Viking; 22-inch window fan; push button controls, reversible, automatic timer. 20-inch multi-purpose fan in metal frame; reversible, automatic thermostat. Adaptable to rollaway, and hassock stands.

Westinghouse Electric Corp., 3 Gateway Center, Pittsburgh, Pennsylvania. Window, wall, table, and other fans. Current information not available at press time.

New MASO BOOKCASES

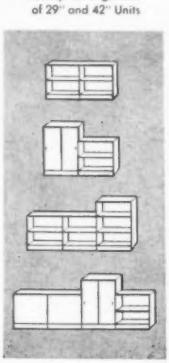
LOW-COST

SMART • STURDY • VERSATILE

MASO new bookcases, with decorative design and beautiful finish, have a wide variety of uses. Attractive as corner or wall bookcases — individually or grouped; island dividers, counters. Provide working, shelf or counter area; office or stockroom storage.

42" MODEL

Group arrangement of 29" and 42" Units



Choice of finish to blend with modern office or store furnishings: Desert Tan, Mist Green, or Gray. Adjustable shelves. Open, or choice of two types of sliding doors—steel or glass. Finish is baked-on-enamel. All models in 12" or 18" depths. Readily convert to door or basic unit style.

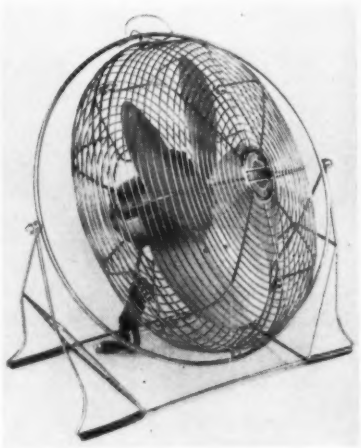
OUR 26th YEAR

MASO

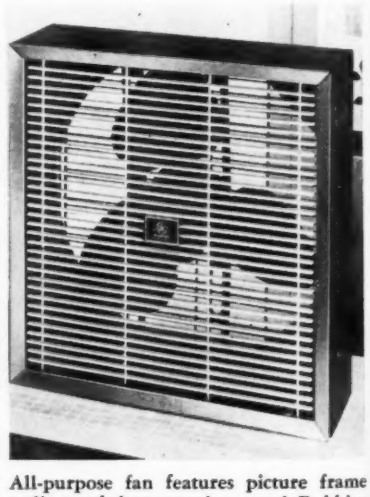
Mail coupon today for FREE CATALOG

INTERSTATE METAL PRODUCTS CO., INC.
(Office Equipment Division)
666 LAKE SHORE DRIVE, CHICAGO 11, ILL.
Please send your FREE CATALOG giving complete information on new MASO bookcases and supply units.

Name.....
Title.....
Company.....
Address.....
(City) (Zone) (State)



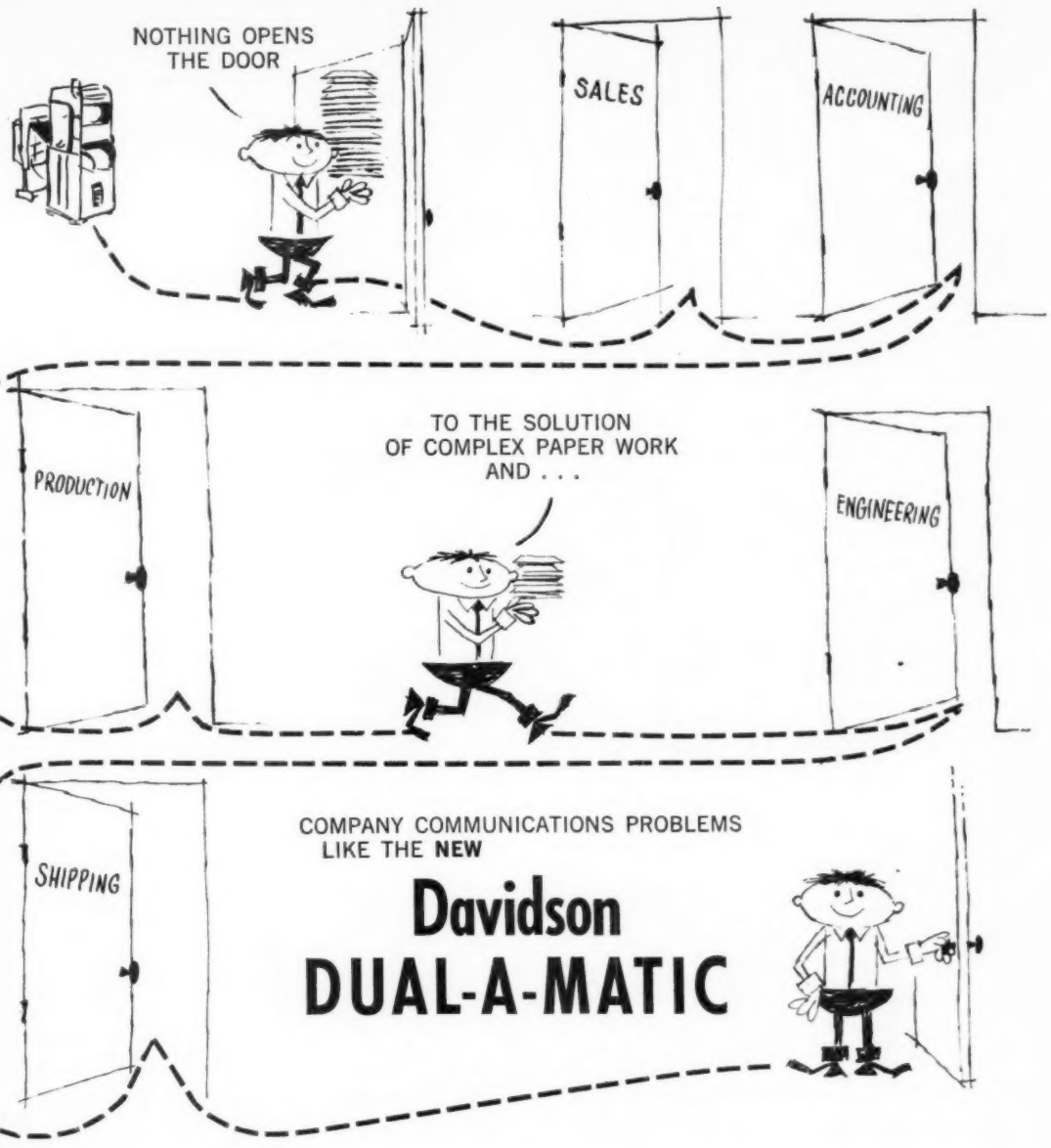
The Windmaker by Phil Rich is available with 10 to 24 inch blade.



All-purpose fan features picture frame styling and thermostatic control. Robbins & Myers, Inc.

Next Month:

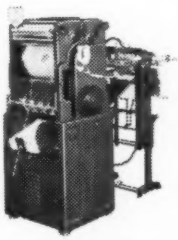
Acoustical Materials
Floor Coverings
Movable Partitions
Overhead Lighting Equipment



This is the *new* DUAL-A-MATIC. One of many Davidson Dual-Liths designed to fit individual in-plant reproduction requirements exactly.

The DUAL-A-MATIC introduces new ease of operation into high speed, short run offset reproduction. Just press a button and let DUAL-A-MATIC take over reproducing your forms, bulletins, engineering drawings, reports and promotional material with wonderful savings in time and money. Solidly built, too . . . to last several lifetimes of lesser equipment. And 27% fewer parts assure economical, trouble free operation.

There are nine other Dual-Lith models. All open doors to increased efficiency and improved, better looking company communications. See them soon. We'd be glad to send you the name of your Davidson distributor . . . and a persuasive booklet! DAVIDSON CORPORATION, subsidiary of Mergenthaler Linotype Company, 29 Ryerson Street, Brooklyn 5, N. Y.



Davidson

DAVIDSON CORPORATION
Subsidiary of Mergenthaler Linotype Co.,
29 Ryerson Street, Brooklyn 5, N. Y.

I want to know more about the new DUAL-A-MATIC. Please send booklet and the name of my Davidson distributor.

Name_____

Title_____

Company_____

Address_____

City_____ Zone_____ State_____

OM 4-59

ARE YOUR PAPERS PLAYING...

HIDE AND SEEK?

Filing is important only if the *finding* is easy. Can you *always* put your hand on the letter, invoice, order, report or other paper you want, *instantly?* Are your files neat, compact, space saving? Your Stationer will be glad to explain the advantages of ACCO-filing to keep your records safe, and finding quick. See him now!

"ACCO BOUND PAPERS ARE SAFE PAPERS"

The Accopress Binder combines loose leaf convenience, large capacity and economy. Ideal for Catalog Covers.

When transfer time comes just slip the bound papers from the Accobind Folder, insert a new Acco Fastener and the Folder is ready for another year's filing.

ACCOBIND folders

ACCOPRESS binders

PIN-PRONG binders
(for marginal multiple punched forms)

ACCO clamps

ACCO punches

THE ACCOWAY SYSTEM
(for filing Blueprints and all large sheets)

and other filing supplies

ACCO PRODUCTS
A Division of NATSER Corporation
Ogdensburg, N. Y.
In Canada: Acco Canadian Co., Ltd., Toronto

Coming Events

(*From page* 23)

AMA Seminar: Developing a Sound Records Retention Program. Chicago, May 18-20.
Sponsor: American Management Association.
Place: LaSalle Hotel.

CIA Western Regional Conference. Santa Barbara, Calif., May 21-23.
Sponsor: Controllers Institute of America.
Place: Santa Barbara Biltmore Hotel.

NOMA Annual Office Exposition and 40th International Conference. New Orleans, May 24-27.
Sponsor: National Office Management Association.
Place: Municipal Auditorium and Roosevelt Hotel.

ASQC Annual Convention and All Industry Production & Quality Control Exposition. Cleveland, May 25-26.
Sponsor: American Society For Quality Control.
Place: Sheraton Hotel and Public Hall.

AIB Conference. Philadelphia, June 1-5.
Sponsor: American Institute of Banking.
Place: Bellevue-Stratford and Sheraton Hotels.

CBEMA Canadian National Business Show. Toronto, Canada, June 8-10.
Sponsor: Canadian Business Equipment Manufacturers' Association.
Place: Automotive Building, Exhibition Park.

AMA—

(*From page* 33)

tronic data processing to business, however, far transcends the automation of office routines. The full application requires the critical study of the whole operation to determine how much of the office routine is a necessary part of the business, and how much of it just grew up to suit the operators in the office.

"Already the equipment available to us is far more complex than is needed for office routines or for factory machine operation, and for most engineering and scientific investigations.

Use Readers' Inquiry Coupon on Page 88

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If you're "out to sea" in paper work...

get on solid ground by consulting one of Reynolds & Reynolds expert representatives! They've helped hundreds of large and small companies simplify paper work procedures. Reynolds & Reynolds will design business forms to meet your own particular requirements . . . and coordinate these special forms into an integrated system which will streamline your entire office procedure. Reynolds & Reynolds systems are made up of custom-tailored payroll checks, voucher checks, purchase orders, invoices, inventory records, production records, letterheads, envelopes, customer statements, machine accounting forms, bills of lading, journals and ledgers—to mention a few!

Let a Reynolds & Reynolds representative go over your paper work with you . . . no obligation! See list on adjoining page . . . call today!

The Reynolds & Reynolds Company

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BUSINESS FORMS AND SYSTEMS SINCE 1866

Also manufacturers of Post-Rite Pegboard Accounting Systems

"Thus, this elaborate equipment points the way toward the use of electronic data processing for business operations not previously performed at all, rather than as a substitute for personnel, effort, and skill," he continued.

Applications of this type, LaPierre predicted, will require the complete restudying of entire business operating procedures, embracing both manufacturing and administrative routines.

"Indeed, the use of electronic data processing to date has forced the restudy of many a business operation for the simple reason that a computer cannot walk in and take over from the present manual operations. The operation has to be programmed or translated into instructions which the computer can understand. The programming itself requires an understanding of the overall operation. As an example, our records show one case where we paid an employee an award for showing us how to save money by installing a computer, and later we paid another employee an award for showing us how we could save money by taking the same computer out."

This seeming paradox came about because the particular operation which it was suggested the computer could handle was found to be completely unnecessary because of changes brought about in other data processing areas by electronic innovations, LaPierre declared.

"Too many of our office operations fall into this category," he told the AMA group. "This is true to such an extent that for a while our controller felt that the way our business data processing could best be brought up to date was to order computers and immediately set to work to program their use. In a surprising number of cases, he claimed, the programming disclosed that the computer was unnecessary and could be cancelled.

"Complete" programming foreseen

"Such experiences will become more commonplace as we restudy the complete business operation in view of increasingly available, and more and more versatile electronic data processing equipment," he declared. "What is suggested here is that after we have programmed our office and factory routines and eliminated an astonishing amount of paper shuffling, which has grown up around the limitations of manual operators, we are then going to find that by programming the whole business, we can eliminate even more detailed drudgery. This is the next phase of applying electronic data processing to industry."

One barrier to expanding the use of electronic data processing in offices, he maintained, will stem from the difficulty of translating human instructions into machine instructions. There is relatively little difficulty in accomplishing this with long established routines, he said, but the problem becomes much more complex if machines are to "accommodate improved routines, meet unusual situations, and other changes demanded by a dynamic business.

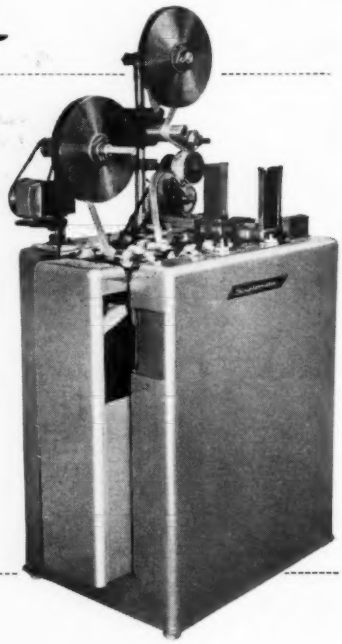
"None of these problems in itself is likely to bar the way toward coordinating various numbers and types of data processors to perform more and more of the normal routine operations of a business," he went on. "What is most likely to delay our full use of electronic data processing is our lack of understanding of so many things pertaining to businesses.

Scriptomatic®

ULTRA HIGH SPEED TAPE ADDRESSING

- **Model 301—30,000 to 40,000 addresses per hour.**
- **Masters are standard punched cards.**
- **Prints 5 line addresses on ⅞" tape.**
- **Standard Model prints addresses to 2½" length and punches holes to standard 2 11/16" centers.**
- **Continuous loading and unloading of card masters.**
- **Town marking attachment.**
- **Dimensions of Model 301—19½" wide, 33" long, 58" high.**

Write for Prices and Detailed Bulletin.



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"We are a long way from achieving deep, thorough understanding of such simple concepts as executive work and decentralization, to mention but two.

"Is executive work a separate, distinguishable type of work, or does it consist of taking over the jobs of others during real or fancied emergencies?

"Does centralization mean making decisions at the top?" he queried. "If so, how do we explain our observations in Washington where, in spite of or perhaps because of high centralization, the major decisions drift into being at the bottom. When they reach the top there remain only a few limited choices as to direction, the principal decisions having long since been made — or drifted into might be a better way of saying it — by actions at lower levels.

"Conversely, does decentralization mean primarily making decisions at the lower levels, or is the primary purpose to make major decisions at the top?" LaPierre asked the management group.

"Until these and many other concepts are understood, there will be some considerable difficulty in designing machines to do the non-executive or non-managerial work," he concluded.

Planning determines effectiveness

The amount of planning that goes into preparing for a computer installation directly controls the effectiveness of that installation, L. A. Ohlinger, chief of the Computing and Datamation Center, Northrup Division, Northrup Aircraft, told the group in the second talk of the morning.

Speaking on "Planning a Computer and Data Processing Center for Progressive Growth Rather than Progressive Obsolescence," Ohlinger said that good planning required "outguessing" the potential changes in electronic computers, "the manufacturers of which are too often following haphazard planning practices, which lead to rapid obsolescence of their products.

"There is nothing inherent in electronic computers and data processors that assures their efficient use in a firm or that will enable them to ever replace management itself," he asserted. "Without humans these machines are helpless and poor planning for their use can make them costly tools. Therefore it is time for management to take a good hard look at what it expects of electronic computers and what they can and can't do, before getting involved in a contest for which it is inadequately prepared."

The first part of the afternoon session on Monday, March 2, was devoted to a panel discussion on the subject, "Should You Buy, Lease, Share a Computer — or Utilize a Service Center?" Panel speakers were C. C. Abbott, manager, Administrative Services Dept., Arthur Andersen & Co., New York; Harold F. Hatch, 2nd vice president, John Hancock Mutual Life Insurance Co., Boston; Edward Howard, manager, Electronic Data Processing Dept., California Texas Oil Co. Ltd., New York; and Norman Oxley, assistant controller, Allied Chemical Corp., New York.

Describing the experience of his company, which purchased a computer, Mr. Hatch declared that the obsolescence factor, which has persuaded many companies that it would be wise to rent a computer rather than buy one, is not a particularly serious problem.

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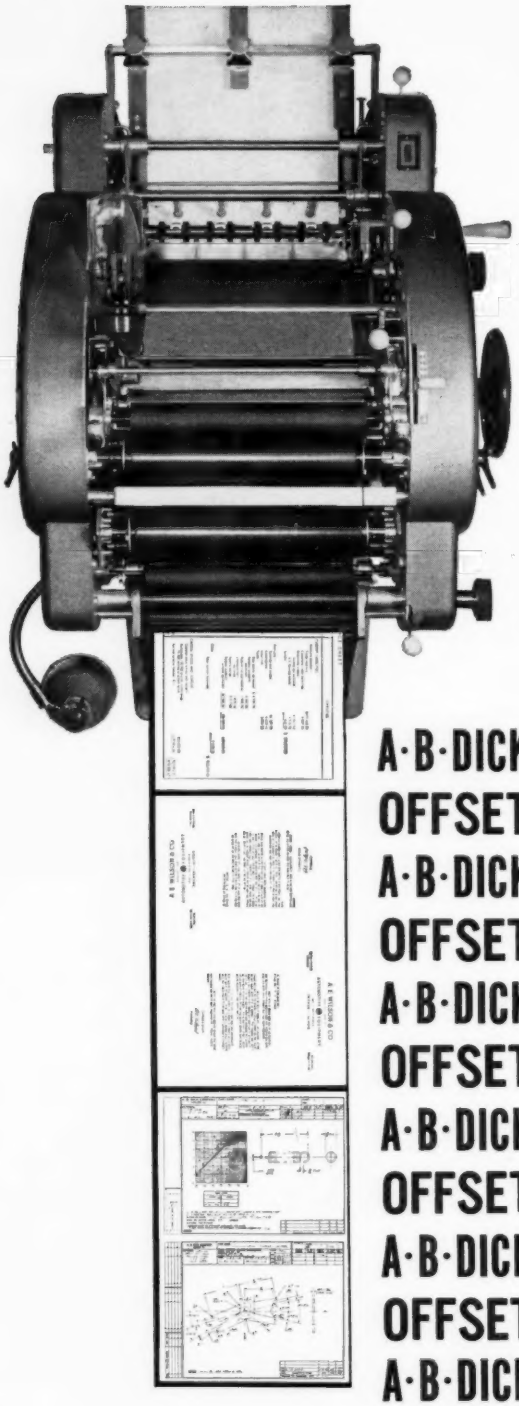

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computers in 1948, Hatch said, but came to the conclusion that the equipment available then did not meet its needs. In 1954, it again became interested, and after investigating the products of four different manufacturers, settled on a given computer as the one best suited to its requirements. The particular computer chosen could either be purchased or rented. John Hancock decided to buy the machine outright, and has never regretted its decision, he reported.

"There is no rule of thumb to follow in answering the question as to whether you should buy a computer," he concluded. "The decision depends on the particular situation of your company. Certainly the savings seem attractive. Computers have been purchased and are showing a profit. There is enough evidence today so that you can separate the facts from the opinions and utilize the knowledge rather than tradition. There is a risk if you buy but also an opportunity."

Presenting the case for equipment rental was Norman Oxley, whose company, Allied Chemical Corp., has since 1957 rented all its electronic data processing equipment.

When Allied first made a study of possible electronic data processing applications in 1957, it had six operating divisions, with completely separate data processing sequences in each division.

"Our survey of the state of the union in order to decide what to do about computers disclosed many things which we felt we must get out of the way before proceeding with a long range computer program," Oxley said. "In accounting and statistical accumulation we found a serious lack of uniformity, sometimes in the simplest data processing areas. Each division had developed a system built on significant peculiarities which made it impossible to program or operate E.D.P. equipment economically. Because of the differences and dispersion we had less than optimum use of equipment already on hand. We were then renting at an annual rate exceeding one-half million dollars.

"Stock-taking" essential

"This stock taking is a matter which, to me, is of paramount importance, and a feature of computer installation too easily hastily approached. It can reveal many things which should be done to improve earnings promptly and quite independently of computer advantages," he continued.

Once the company had analyzed its then current procedures, it set three major goals for itself:

1. To complete a program for uniformity.

2. To follow this with a well-designed program to introduce electronic processing into both office work and the scientific field.

3. To decide then whether it would be most practicable to centralize with larger computers or disperse with medium size computers.

"It might be of interest to you if I described some of the difficulties we encountered in what we categorized as the uniformity problem," Oxley went on. "We found initially that in no way were our invoices in the several divisions anything alike. Instead of programming and operating a single system or compatible systems for accumulating data for sales invoices we would have had more than a half dozen. We are well on our way to resolving this. The matter of sales statistics, while necessarily different in divisions handling dissimilar products, went overboard in the extent of differences to be considered. Our purchase order and vendor invoice han-

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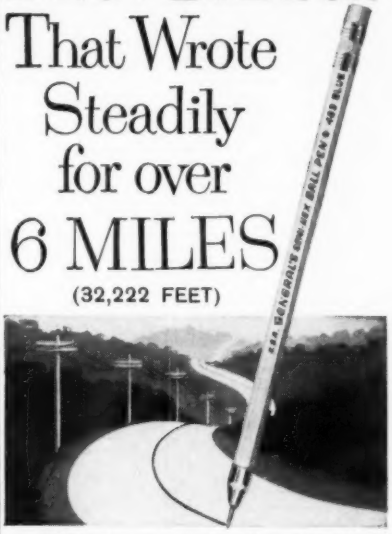

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dling practices were so many that I am embarrassed to mention the number. This has been clarified a good deal. We will have less than five per cent of the variety we had before.

"Our cost accounting, while reported uniformly at the top, reached this pinnacle miraculously because earlier in preparation it is extraordinarily non-uniform not only between divisions, but on occasion within divisions. Accumulation of various expenses, distribution costs in particular, varies a great deal. Surprisingly, we would have needed several programs to put hourly payroll analyses of more than one division on a single installation. Obviously, to be of maximum value to our top executives, reports should mean the same thing when they say the same thing. There is a serious disadvantage in constantly explaining to these men that Account X in Division A is not comparable to Account X in Division B. This is especially unfortunate when the product lines happen to be generally of the same nature."

Allied decided that since it would take some little time before all its processes were redesigned for computer applications, it would be wisest to rent its first computers, rather than buy them, since it might find its machine needs changing as additional areas were reorganized for electronic processing. Moreover, the company did not feel that it would save enough by buying computers rather than renting them to make purchasing the machines worthwhile.

"We made all of the calculations of return on the investment that we could think of," Oxley said. "We made them with respect to single items, groups, and total equipment. In no case did we find that the return on the investment was sufficiently attractive to encourage us to buy anything. The rates of return which we expected were tested in the same way as we test all proposals for expenditures for plants. The return was required to meet, initially, a satisfactory percentage rate and if it reached such a rate, was further tested in the light of possibility that the piece or pieces of equipment might not be required as our uniformity program proceeded. It was rated as well in the light of obsolescence, a threat more applicable to some items than others, but in my personal opinion a threat somewhat overrated.

"When we have made a little more progress on our program for uniformity and when we have determined how best to apply computers to the new data, we will then have a new problem to resolve. This will be to locate electronic data processing installations so that maximum efficiency and profit will result. We expect to be engaged in finding uses for computers for operations research, production planning, inventory control, profit analyses, and in assistance to our technical staff. We do not yet know whether we will end up with the largest computer in one or two central points, or whether it will be better to have medium-sized jobs in several places.

"May I summarize by recommending strongly that a scouting expedition is not enough before deciding whether to buy or rent. A complete infiltration is necessary. Knowing all about where you are, and where you're going is the first assignment in your computer degree course."

Edward Howard, describing the reasoning that led the California Texas Oil Co. to decide to depend on a service bureau rather than rent or buy a computer, said that the company's program was still experimental, and

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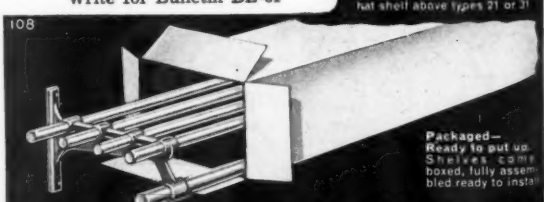

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And simultaneously, new tapes recording this transaction are prepared automatically in the receiving department . . . and the tabulating department . . . to be used to expedite a receiving report and to prepare business machine cards for the open purchase order file.

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it believed that an "on premises" data processor would tempt executives to devise programs to "fill in" computer time. Such applications could hinder the development of far more important programs.

"Our policy is as follows," Howard said: "We are engaged in a frankly experimental program. We consider it to be important. It will generate an unknown volume of large scale computer usage. Neither the management nor we desire it to mushroom unnecessarily or prematurely. Our client departments and their managers are happy to avoid meeting all at once the kind of procedural problems our programming efforts raise. The electronic data processing managers are happy to avoid the administrative burden of installing and operating a computer.

"While California Texas has most of the problems facing any oil company," the speaker continued, "all its operations are in the Eastern hemisphere. The electronic data processing program is centered in the New York office. Therefore all current work is devoted exclusively to management processes. We and our management are interested to see what can be developed in this area, but we have no precedent to assure ourselves of success. We also realize that we will not succeed by writing electronic data processing programs alone. We must persuade reasonable people to use them and that is not always easy. For these reasons we consider our program to be experimental.

"We'd try it and see"

"Caltex entered the electronic data processing field only recently. It seemed filled with a number of promising and important sounding applications. But it also seemed short of demonstrable successes. We decided to adopt an objective and uninhibited attitude. We would try it and see. But we agreed that the experiment had to be in reasonable strength to produce demonstrable results. We were tight on high calibre manpower, and could not afford to use these and other expensive machines for anything other than critically important applications. So we chose what seemed to us most important without too much regard for whether developing it would be easy or not.

"Our company, owned jointly by the Texas Co., and the Standard Oil Co. of California, has interests in about 100 affiliated companies operating in about 70 Eastern Hemisphere countries. These companies are engaged in all phases of the oil busines, have interests in sixteen refineries, and gross on the order of a billion dollars yearly. In a decentralized enterprise of this kind, in which activities of all divisions are interrelated in a complex way, it is difficult to estimate quickly effects on the whole system of proposed changes in its parts. Yet this must be done if short and long range planning are to be effective. This was taken as our overall objective.

"We established a long range program on paper and we tried to find out on which common elements the whole plan depended. After that, we set seriously to work on the first stages. Each individual project we are developing is a coherent part of that overall plan, but each individual project stands on its own merits as an application, even if nothing else gets done. It is our intention to go down the road one careful step at a time until we run out of useful projects, complete an integrated system, or die of old age — whichever comes sooner.

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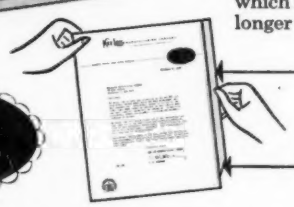

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Again, wall space has been lined with wall racks to store thousands of cards in the smallest possible area.

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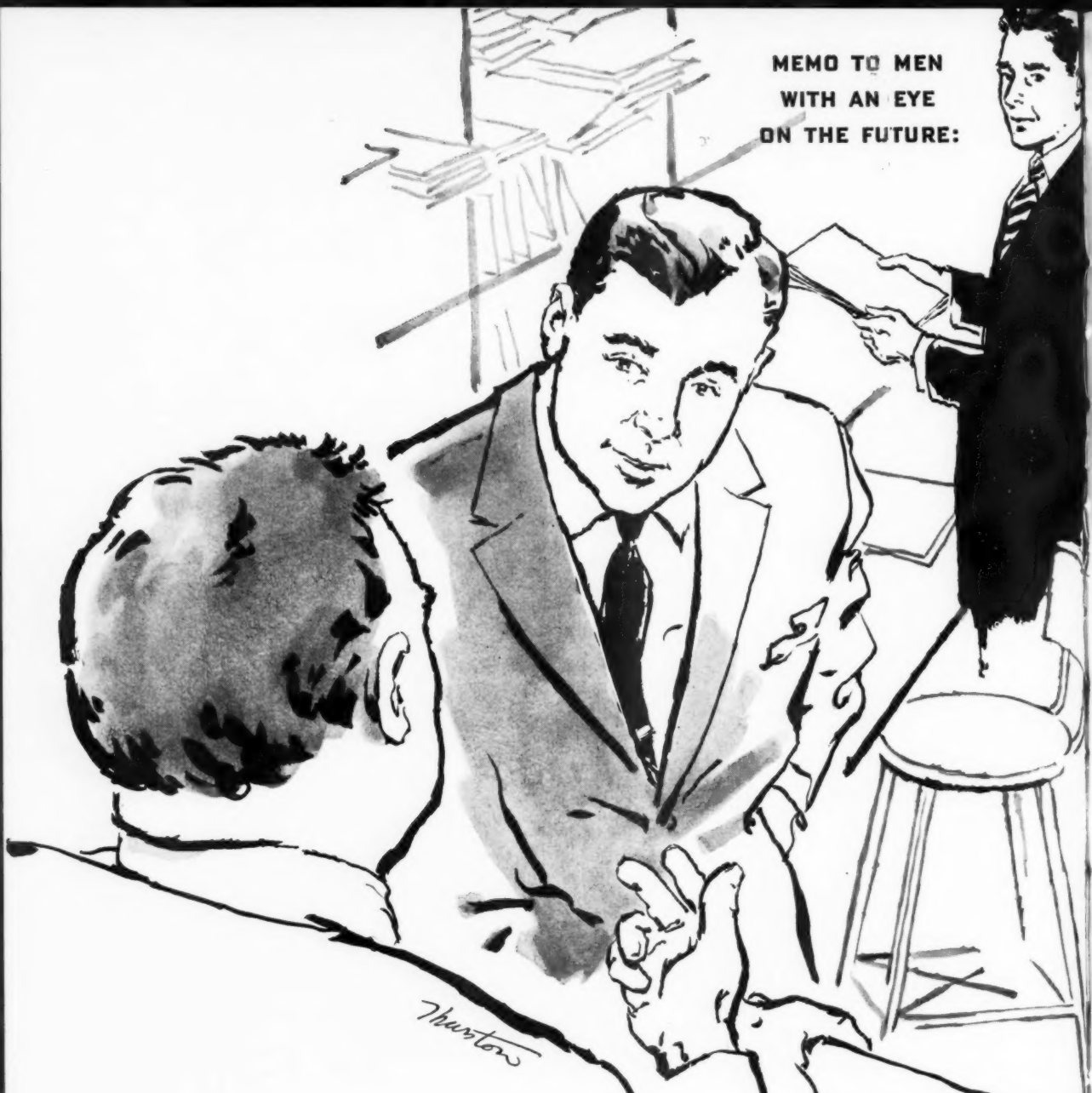

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part of the short and long range plan which is measured in quantitative units related to oil movements, that is sales, production, ships, etc. Our approach is to record details of the entire forecasted operating situation in electronic data processing media, together with programs for manipulating them under what we call 'empirical restraints,' that is, the kind of operating rules which people tend to establish when doing this sort of thing by hand. Empirical restraints include approved assumptions regarding specific uncertainties, as well as such points of operating policy as are coherent and stable enough to be built into a machine system. We are experimenting with what we choose to call 'objective restraints' such as minimum cost, maximum volume, etc., and at the proper time will inject them into the system in place of some of the empirical restraints. This takes us into the Operations Research and Management Science field, and it is fair to say that in our company these and E.D.P. are all one ball of wax, insofar as they bear on the program I have described.

"The specific projects which we are now developing include the forecasting of sales, matching of sales requirements with production, and matching of transport requirements with availables. We are working on programs for computing refinery yields, that is the so called refinery simulation. We are experimenting with various forms of economic evaluation, and with ship and harbor scheduling.

"Our results look promising but are still largely on paper. We found for one thing that a medium scale machine would have been a waste of time on this application. We have no idea how far this kind of program will take us into large scale machine usage, however.

"To return to the theme of this panel," Howard went on, "we feel that our rationed efforts should be channeled carefully to the things that we are best able to do — the development side of this program. Our business is oil. It is company practice to purchase intermittent service of all kinds. Most of our plants were designed and constructed by outside contractors, for example, why not our computing? Actually, we have three different service bureaus working on parts of our EDP program, and may use others from time to time. There seems no need for us to be self-sufficient for services of this kind, unless it is forced on us by considerations of money or experience. If computing volume or scheduling requirements eventually force it, we will then reconsider."

Cooperatives offer cost benefits

The fourth panel speaker, C. G. Abbott, manager, Administrative Services Dept., Arthur Andersen & Co., outlined some of the reasons that led four Hartford insurance companies to create SPAN — a mutually owned and operated computer center which does work for each of the four.

This is a possible solution for companies which can program basically similar operations in the same fashion, he pointed out, and have a large volume of basic repetitive processing to be done.

Service bureaus are not of too much use to such companies, he declared, although they may be extremely helpful in cases where a company's program is oriented toward the analytical, scientific, or operations research approach.

"The management which commits itself primarily to the high speed solution of planning, scheduling, or other types of decision-making problem is confronted with an interesting paradox," he continued.

"1. It will probably enjoy the greatest long-term benefits a computer can offer, but— (*To page* 76)

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IN THE UNITED STATES
DISTRICT COURT
DISTRICT OF CONNECTICUT

UNITED STATES OF AMERICA, Plaintiff
v.
PITNEY-BOWES, INC., Defendant
CIVIL ACTION No. 7610

FINAL JUDGMENT

Plaintiff, United States of America, having filed its complaint herein on January 9th, 1959, and defendant, Pitney-Bowes, Inc., by its attorneys, having appeared and denied the substantive allegations thereof, and plaintiff and defendant having severally consented to the making and entry of this Final Judgment without trial or adjudication of any issue of fact or law herein and without admission in respect to any issue:

Now, THEREFORE, before any testimony has been taken and without trial or adjudication of any issue of fact or law herein and upon consent to the parties hereto, it is hereby ORDERED, ADJUDGED AND DECREED AS FOLLOWS:

I

The Court has jurisdiction of the subject matter of this action and of the parties hereto. The complaint states a claim against the defendant Pitney-Bowes, Inc. upon which relief can be granted under Section 2 of the Act of Congress of July 2, 1890, entitled "An act to protect trade and commerce against unlawful restraints and monopolies," commonly known as the Sherman Act, as amended.

II

As used in this Final Judgment:

(A) "Postage meter" shall mean any device or mechanism, and the component parts thereof, which prints, registers and cancels pre-paid postage on mail matter;

(B) "Mailing machine" or "base machine" shall mean any device or mechanism, and the component parts thereof, used to support or facilitate operation of a postage meter, and to feed, moisten, close and seal or stack mail matter impressed with postage by a postage meter;

(C) "Postage meter machine" means any combination of (i) a postage meter and (ii) a mailing or base machine, which combination may be separable into two or more units or complete in itself when actually operated;

(D) "Existing patent" or "existing patents" shall mean any, some or all claims of the following:

(1) United States and foreign Letters Patent owned or controlled by defendant on the date of entry of this Final Judgment;

(2) Applications for United States and foreign Letters Patent, and any Letters Patent which may issue on any such applications, which applications were filed prior to, and are owned or controlled by defendant on, the date of entry of this Final Judgment;

(3) United States and foreign Letters Patent owned or controlled on the date of entry of this Final Judgment by any person other than defendant and under which defendant on such date has the power to grant licenses or sub-licenses to others;

(4) Any divisions, reissues or extensions of the Letters Patent described in clauses (1), (2) and (3) above;

relating to postage meters, mailing or base machines or postage meter machines;

(E) "Future patent" or "future patents" means any United States or foreign Letters Patent or applications therefor and patents which may issue thereon (exclusive of existing patents), and any divisions, reissues or extensions of such Letters Patent, relating to postage meters, mailing or base machines or postage meter machines, (i) which may be owned or controlled by defendant during a period of five (5) years after the date of entry of this Final Judgment or (ii) under which defendant may, during such period, acquire the power to grant licenses or sub-licenses to others;

(F) "Person" means any individual, partnership, firm, association, corporation or other legal or business entity other than the defendant, its directors, officers, employees, agents or subsidiaries;

(G) "United States" means the continental United States, its territories and possessions;

(H) "Qualified domestic applicant" means any person in the United States certified, in writing, by the United States Post Office Department as meeting the qualifications established by said Department to manufacture postage meters or postage meter machines;

(I) "Qualified foreign applicant" means any person outside the United States who (1) represents, in writing, to the United States Post Office Department, its intention to manufacture, outside the United States, postage meter machines to be used, leased or sold in the United States in accordance with applicable rules and regulations of such Department, and (2) is certified, in writing, by such Department as meeting the qualifications established by said Department to manufacture postage meters or postage meter machines for use, lease or sale in the United States;

(J) "Subsidiary" means a corporation more than 50% of whose stock entitled to vote upon election of directors (other than preferred stock entitled to vote upon the failure of the corporation to pay certain dividends) is, directly or indirectly, owned by defendant;

(K) "Defendant" means the defendant Pitney-Bowes, Inc.

III

(A) The provisions of this Final Judgment applicable to the defendant shall apply also to each of its officers, agents, servants, employees, subsidiaries, successors and assigns, and to all other persons in active concert or participation with such defendant who receives actual notice of this Final Judgment by personal service or otherwise;

(B) Defendant is ordered and directed forthwith to serve a copy of this Final Judgment upon (i) each member of its Board of Directors, (ii) each Vice President who is not a member of its Board of Directors, and (iii) the chief executive officer of each of its subsidiaries, and, within thirty (30) days after the date of entry of this Final Judgment, to file with this Court, and serve upon the plaintiff, an affidavit as to the fact and manner of its compliance with this subsection (B), setting forth in said affidavit the name, position and address of each person upon whom a copy of this Final Judgment shall have been served as herein directed.

IV

(A) Defendant is ordered and directed, within ninety (90) days after entry of this Final Judgment, to file with this Court, and serve upon the plaintiff, an affidavit showing separately, as of the date of this Final Judgment:

(1) The number, and date of issue (or filing, as to applications) and name of owner, where applicable, of each existing patent;

(2) The number, date of issue (or filing, as to applications) and name of the owner, where applicable, of each existing United States patent owned or controlled by the defendant on the date of this Final Judgment.

(B) Defendant is ordered and directed to grant to any qualified domestic applicant, making written request therefor to the defendant, a non-exclusive, unrestricted and royalty-free license to make (but not to have made—except for component parts), use, lease and vend postage meter machines under any, some or all, as the applicant may request, existing United States patents;

(C) Defendant is enjoined and restrained from including in any license issued pursuant to subsection (B) any restriction or limitation whatsoever except that (i) the license may be non-transferable, and (ii) reasonable provision may be made for marking the postage meter machines manufactured, used, leased or sold by the licensee under such license with the number of the patents covering such machines under which the licensee is licensed.

(D) Defendant is ordered and directed to grant to any qualified domestic applicant making written request therefor to the defendant, a non-exclusive and unrestricted license to make (but not to have made—except for component parts), use, lease and vend postage meter machines under any, some or all, as the applicant may request, future United States patents;

(E) Defendant is ordered and directed to grant to any qualified foreign applicant making written request therefor to the defendant a non-exclusive and unrestricted license under any, some or all, as the applicant may request, existing patents and future patents to make (but not to have made—except for component parts) postage meter machines for use, lease or sale in the United States;

(F) Defendant is enjoined and restrained from including in any license issued pursuant to subsections (D) and (E) any hereof restriction or limitation whatsoever except that:

(1) The license may be non-transferable;

(2) A reasonable royalty may be charged, which royalty shall be uniform and non-discriminatory as among licensees procuring the same rights under the same patents;

(3) Reasonable provisions may be made for periodic royalty reports by the licensee to the defendant and inspection of the books and records of the licensee by an independent auditor or any other person acceptable to both defendant and the licensee, who shall report to the defendant only the amount of the royalty due and payable;

(4) Reasonable provisions may be made for cancellation of the license upon failure of the licensee to make the reports, pay the royalties or permit inspection of his books and records as herein provided;

(5) The license must provide that the licensee may cancel the license at any time after one (1) year from the initial date thereof by giving to the defendant thirty (30) days' notice in writing;

(6) Reasonable provisions may be made for marking the machines manufactured, used, leased or sold by the licensee under such license with the number of the patents covering such machines under which the licensee is licensed;

(G) Upon receipt of a written request for a license under the provisions of subsections (D) and (E) hereof, defendant shall advise the applicant, in writing within thirty (30) days, of the royalty it deems reasonable for the patent or patents to which the application pertains. If such applicant and defendant are unable to agree upon what constitutes a reasonable royalty within ninety (90) days from the date the written application for the license was received by the defendant, either the applicant or defendant may, upon notice to the plaintiff, apply to this Court for the determination of a reasonable royalty. In any such proceeding the burden of proof shall be upon the defendant to establish the reasonableness of any royalty requested. Pending the completion of any such court proceeding, the applicant shall have the right to make (but not to have made—except for component parts), use, lease and vend under the patents to which his application pertains without payment of royalty or other compensation, but subject to the following provisions: defendant may, upon notice to the plaintiff, apply to this Court to fix an interim royalty rate pending final determination of what constitutes a reasonable royalty. If this Court fixes such interim royalty rate, defendant shall then issue and the applicant shall accept a license providing for the periodic payment of royalties at such interim rate from the date upon which the applicant requested the license. If the applicant fails to accept such license or fails to pay the interim royalty in accordance therewith, such action may be grounds for the dismissal of his application for a license; in the case of such dismissal, the applicant shall pay any royalties found by the Court to be due to the defendant. Whether or not an interim royalty is fixed by the Court, a final Court determination of reasonable royalty shall be applicable to the applicant for a license from the date upon which the applicant requested such license, and to any other licensee, at its option, then having the same rights under the same patents from the date of such final determination. If the applicant fails to accept a license pursuant to such Court determination, such applicant shall pay any royalties found by the Court to be due to the defendant;

(H) Nothing herein shall prevent any applicant from attacking, in the aforesaid proceedings or in any other controversy, the validity or scope of any of the patents, nor shall this Final Judgment be construed as imputing any validity or value to any of said patents;

(I) Defendant is enjoined and restrained from (i) granting, after date of this Final Judgment, any license or sublicense under any patents to which this Section IV shall apply, except in accordance with, and pursuant to, the terms of this Final Judgment, and (ii) taking, or accepting, after the date of this Final Judgment, any right or license under any patent owned or controlled by any person other than defendant, which right or license is, by its terms or in fact, exclusive to the defendant unless the defendant is also granted the right to grant sublicenses to others;

(J) Defendant is enjoined and restrained from making any sale or other disposition of any patent which deprives it of the power or authority to grant the licenses required by this Section IV, unless the purchaser, transferee or assignee shall file with this Court, and with the plaintiff, prior to consummation of any such transaction, its consent to be bound by the applicable provisions of this Section IV with respect to each patent;

(K) Defendant is ordered and directed, insofar as it has or hereafter may acquire the power to do so, to grant upon written request and without compensation, to any qualified domestic applicant licensed pursuant to this Section IV, with respect to any postage meter machines manufactured in the United States pursuant to such license, a non-exclusive and unrestricted grant of immunity from suit under any foreign patent or application owned or controlled by the defendant at the time of issuance of such license;

(L) Defendant is enjoined and restrained from instituting or threatening to institute any action, suit, or proceedings against any person for use of or any act of infringement of any patent alleged to have occurred prior to the date of this Final Judgment.

V

(A) Defendant, for a period of ten (10) years from the date of this Final Judgment, and upon written request therefor from any person licensed under existing or future patents pursuant to Section IV of this Final Judgment, is ordered and directed to furnish such licensee, for a reasonable charge approximating cost, copies of any technical manuals, books of instruction, drawings, specifications, blueprints, pamphlets, diagrams or other similar documents, which it furnishes generally to its own manufacturing, servicing, repair or maintenance employees relating to the manufacture, repair, servicing or maintenance of postage meter machines commercially produced on the date of this Final Judgment.

Adv.

(B) Defendant, for a period of five (5) years from the date of this Final Judgment, and upon written request therefor from any person licensed pursuant to Section IV of this Final Judgment, is ordered and directed to furnish such licensee, for a reasonable charge approximating cost, copies of the patents under which such person is licensed and such of the defendant's technical information as licensee may reasonably need to enable him to utilize the invention or inventions of any of the patents licensed by the defendant to such licensee in such licensee's manufacture, not including, however, the type of documents referred to in sub-section (A) above.

(C) For a period of five (5) years from the date of this Final Judgment, and upon receipt of a written request from any person licensed pursuant to Section IV of this Final Judgment representing that the technical information furnished to such person by the defendant pursuant to subsections (A) and (B) of this Section V is inadequate or insufficient to enable such person satisfactorily to manufacture, operate, maintain, service or repair postage meter machines manufactured under his license from the defendant, the defendant is ordered and directed to make available to such licensee at the expense of the licensee for travel and at reasonable times and for reasonable periods, technically qualified personnel from among its own employees, for consultation with such licensee at the licensee's place of manufacture regarding the licensee's manufacture, repair, servicing or maintenance of postage meter machines. This subsection (C) shall not require the defendant to send any person outside of the United States.

(D) For a period of five (5) years from the date of this Final Judgment, any person licensed by the defendant pursuant to Section IV of this Final Judgment shall, upon written request to the defendant, and at his own expense, be permitted to visit the principal plant of the defendant manufacturing postage meter machines for the purpose of observing, and being advised as to, the methods, processes, machines and equipment then being used by the defendant in its commercial production of postage meter machines; provided, however, that such visits may be restricted as follows:

(1) To not more than 3 officers or employees of the licensee at any one time;

(2) To not more than 4 such visits per year.

(E) The defendant may, as a condition to furnishing the benefits set forth in the foregoing subsections of this Section V, require the licensee, in writing, to agree to maintain any technical information received by such licensee from the defendant in confidence and use such information solely in connection with the manufacture, maintenance, service or repair by or for the licensee of postage meter machines.

(F) In order to accomplish the purposes of this Final Judgment, nothing herein shall be construed to prohibit the defendant from providing, upon terms and conditions not inconsistent with the other provisions of this Final Judgment, to any person requesting it, information or assistance not otherwise provided for in this Final Judgment.

(G) The furnishing by defendant of patent licenses and technical assistance pursuant to the requirements of Sections IV and V of this Final Judgment shall not, in and of itself, create or constitute as to defendant, any guaranty or warranty as to machines not manufactured by it.

VI

(A) For a period of ten (10) years from the date of this Final Judgment, the defendant is enjoined and restrained from acquiring, directly or indirectly, through nominees, agents or otherwise, any of the assets or capital stock of or any financial interest in, any person engaged in the manufacture, sale, distribution or leasing of postage meter machines.

(B) Nothing in this Section VI, however, shall be construed to prohibit (i) acquisition by defendant of all or part of the securities or assets of any of its subsidiaries; (ii) formation of subsidiaries by defendant and the transfer thereto of assets of defendant or of its subsidiaries; (iii) acquisition by the defendant of all or any part of the stock or assets of any agent or distributor of defendant's products, who is not engaged in the manufacture or distribution of postage meter machines not manufactured by defendant; (iiii) application to this Court, at any time after this Final Judgment has been in effect for five (5) years from the date thereof, upon notice to the plaintiff, for permission to acquire any or all of the assets or capital stock of or financial interest in, a person engaged in the manufacture, sale, distribution or leasing of postage meter machines, which may be granted upon a showing by defendant to the satisfaction of the Court, that the effect of any such acquisition will not be substantially to lessen competition or to tend to create a monopoly in the manufacture, sale, distribution or leasing of postage meter machines.

VII

(A) Defendant is enjoined and restrained from, directly or indirectly, entering into, adhering to, maintaining, or claiming any right under, any contract, agreement, understanding, plan or program with any person engaged in the manufacture, sale, distribution or leasing of postage meter machines which:

(1) allocates or divides territories, markets or customers for the manufacture, sale, distribution or leasing of postage meter machines;

(2) fixes, determines or adheres to any price, or element of price, for the distribution, sale or lease of any postage meter machines;

(3) restricts, hinders, limits or prevents such person or any other person from importing postage meter machines into the United States or exporting such machines from the United States;

(4) appoints or designates the defendant as a distributor or agent for the distribution, lease or sale in the United States of postage meter machines produced by any person engaged in the manufacture of postage meter machines;

(5) appoints or designates, as a distributor or agent of the defendant, for the distribution, sale or lease of postage meter machines manufactured by the defendant, any person engaged in the manufacture of postage meter machines;

provided that the foregoing shall not be construed to prohibit defendant from entering into bona fide exclusive distributorship arrangements for designated territories with any person not then engaged in the manufacture or distribution of postage meter machines manufactured by a person other than the defendant.

VIII

(A) Within six months following the ten (10) year period from the date of this Final Judgment, upon application by the plaintiff, the defendant shall show to the satisfaction of the Court that substantial competition then exists with respect to the manufacture, sale, rental and distribution of postage meter machines in the United States. Such competition shall be deemed to exist if persons in each major market area of the United States then have the opportunity, actual and practical in fact, to purchase or rent from other than the defendant on reasonably competitive terms, postage meter machines or devices and mechanisms serving purposes equivalent thereto, under Post Office Department regulations.

(B) If defendant fails to establish to the satisfaction of this Court that such competition then exists, defendant shall submit to the Court a plan, which to the satisfaction of this Court, in light of the conditions then existing, as well as the steps defendant has taken to try and bring about such competition, with full hearing and opportunity for both parties to be heard and present evidence, is designed to bring about such competition as soon as possible. Such plan shall provide for bringing about such competition, in a manner as, by the Court may be deemed necessary or appropriate (1) by substantial assistance to a competitor or potential competitor; or (2) by the establishment of competition by defendant out of its assets, business and properties; or (3) by some other or different method.

(C) Upon such terms as this Court may direct, the defendant may be relieved of its obligations under subsections (A) and (B) of this Section VIII at any time within ten (10) years from the date of this Final Judgment, by (i) applying to this Court, upon notice to the plaintiff, for such relief and (ii) establishing, to the satisfaction of this Court, (a) that a competitor or competitors to the defendant (and in no manner, directly or indirectly, affiliated with the defendant) is or are then actually engaged in the commercial manufacture, sale, rental and distribution of postage meter machines in the United States, and (b) that by reason of the then existence of such competitor or competitors to the defendant, the competition specified in subsection (A) of this Section VIII has then been accomplished.

IX

(A) Defendant is ordered and directed, within ninety (90) days from the date of this Final Judgment, to furnish a true and complete copy of this Final Judgment (a) to the Postmaster General of the United States and (b) to each person who makes written request to the defendant for a copy of this Final Judgment.

(B) Defendant is ordered and directed to cause a copy of this Final Judgment to be published not less than once a month for three (3) successive months after the date of this Final Judgment, in a trade publication of general circulation to persons engaged in manufacturing office machines and equipment.

X

For the purpose of securing compliance with this Final Judgment, duly authorized representatives of the Department of Justice shall, upon written request of the Attorney General, or the Assistant Attorney General in charge of the Antitrust Division, and on reasonable notice to defendant, made to its principal office, be permitted, subject to any legally recognized claim of privilege, (a) reasonable access during the office hours of defendant to all books, ledgers, accounts, correspondence, memoranda, and other records and documents in the possession, custody or control of defendant relating to any matters contained in this Final Judgment, and (b) subject to the reasonable convenience of defendant, but without restraint or interference from it, to interview officers, directors, agents or employees of the defendant, who may have counsel present, regarding any such matter. Upon the written request of the Attorney General, or the Assistant Attorney General in charge of the Antitrust Division, defendant shall submit such written reports with respect to any of the matters contained in this Final Judgment as from time to time may be reasonably necessary for the purpose of enforcement of this Final Judgment. No information obtained by the means provided in this Section X shall be divulged by any representative of the Department of Justice to any person other than a duly authorized representative of the plaintiff, except in the course of legal proceedings to which the United States is a party for the purpose of securing compliance with this Final Judgment, or as otherwise required by law.

XI

(A) Jurisdiction is retained for the purpose of enabling either of the parties to this Final Judgment to apply to this Court at any time for such further orders and directions as may be necessary or appropriate for the construction or carrying out this Final Judgment, for the modification or termination of any of the provisions contained herein, for the enforcement of compliance therewith and the punishment of the violation of any of the provisions contained herein.

(B) Jurisdiction is additionally expressly reserved to enter appropriate orders modifying Section V(A), (C) and (D) hereof, if such orders are consented to by the plaintiff, which consent is not to be unreasonably withheld, with respect to the obligation of the defendant to furnish the technical assistance referred to in Section V(A), (C) and (D) hereof, where the furnishing of same would tend to defeat the objectives of this Final Judgment to assure effective competition between defendant and others in the postage meter machine industry and to avoid undue concentration in such industry.

Dated: January 9th, 1959.

(sgd) Robert P. Anderson
United States District Judge

We hereby consent to the making and entry of the foregoing Final Judgment:-

For the Plaintiff:-

(sgd) Victor R. Hansen
Victor R. Hansen
Assistant Attorney General

(sgd) William D. Kilgore, Jr.
William D. Kilgore, Jr.

(sgd) Lewis Bernstein

(sgd) Harry N. Burgess
Harry N. Burgess

(sgd) Lewis J. Ottaviani
Lewis J. Ottaviani
Attorneys for Plaintiff

For the Defendant:-

SHATTUCK, BANGS & DAVIS

(sgd) Charles P. Collins
Charles P. Collins,
a member of the above firm.

(sgd) Edwin P. Shattuck
Edwin P. Shattuck, of Counsel

(sgd) Sigmund Timberg
Sigmund Timberg, of Counsel

WIGGIN & DANA

(sgd) Frederick H. Wiggin
Frederick H. Wiggin
a member of the above firm.

Attorneys for Defendant.

Adv.

"2. It will probably be among the last to have a machine of its own.

"The simple explanation is that these problems are hard to define and difficult to program in both the broad and the specific sense of the word. Yet typically they take relatively few machine hours to solve. Under these circumstances, a computer could not be fully utilized during the many months or years required to build a library of proven routines from which come the answers to the bigger management questions. To those who give priority to programming the decision-making problems first, the service bureau is a natural ally."

However when the average workload equals about half a shift, then it is time to call the projects back home, he asserted, although the breakpoint would vary between service bureaus, depending on the type of machine used.

"Many clients of service bureaus use them at irregular times, but there is a growing precedent for booking recurring production time," he went on. "One of the larger and more competent electronic data processing departments in commercial industry today has no machine of its own, and probably will not until this high level problem solving generates computer time equal to the characteristic breakpoint."

Despite the apparent attractiveness of service bureau rates, he declared, there are practical difficulties attached to using one extensively. When it comes to "pouring large doses of daily information into an electronic funnel," scheduling complications and lapses in communication are all too apt to occur. This, he continued, was one of the considerations which led a group of New England insurance companies to syndicate and operate its own facility.

Common programs devised

"Aetna (Fire) Insurance Co. recognized in 1955 that the machine it could afford would not meet its needs, and the one it needed it could not afford," Abbott said. "Even if an independent service center had existed in the area, countless administrative problems would have stood in the way of efficient daily operation. Consequently Aetna invited three other underwriters to join with it and form a data processing center known as SPAN—a contraction representing the names of the four member companies."

The concept of SPAN is certainly sound, he stated, and makes considerable economic sense for any group with a homogeneous product line. State regulatory agencies prescribe the form of financial data and consolidated rating boards influence the statistical output for insurance companies. Even so, in Hartford, the parent organizations experienced some difficulty resolving the final form and content of internal management reports, but their common objective eventually brought about complete standardization of reporting and agreement on uniform outputs.

"This accomplishment led logically to the potentially largest economy available in a shared operation—a common set of programs," Abbott said. "The highly expensive task of analyzing and coding 45 basic runs costs each member exactly one-third of what it might have. Up until the present time there has been no custom programming. Some companies do not receive all of the output but no one has asked for special processing.

"The formula for defraying the cost of SPAN seems to be as workable as

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it is simple," he went on. "The capital items are shared equally. Programming, at $45,000, is the largest of these. Total site preparation follows at $360,000 exclusive of leasing the land. This is a remarkable figure in view of the facilities at Hartford. They own a completely modern, air conditioned, functional building with ample administrative space, spacious computer room, lounge, and accommodations for the eleven programmers. There is an enclosed truck loading dock, receiving room, supply, and storage room. Many installations have cost their single occupants as much as this and offered less.

Expenses split according to use

Operating expenses, which are largely composed of equipment rental, are distributed ratably on a usage basis, he stated. Income derived from subleasing of time to outsiders is applied against operating expense and the balance billed. The cooperative is essentially non-profit so that the three stockholding members are billed in arrears for actual expenses. The backers of SPAN are saving from 40 to 85 per cent of the operating costs each might otherwise have experienced with a proprietary machine.

The ingredients of a cooperative are clear, he said:

"Similarity of product or service.

"Strong backing at the Presidential level.

"A firm resolution to adopt standardization.

"Allotting the people to the project whom you can least spare.

"Simple but binding agreement on the sharing of expenses.

"There is no mystery to the formula. Therefore, the idea should spread. But in which direction? Presumably industries that have worked toward procedural standardization ought to be interested — the banks, the airlines, maybe the utilities or the retailers. General manufacturers, no matter how much they might desire the results, will unquestionably have the hardest time negotiating the essential common denominators. Incentive pay plans all differ and most are frozen by contract. Some inventories are identified by part numbering schemes that relate to blue prints and therefore can't be changed. Accounts receivable have discount secrets locked up within them and warrant special security measures. The fact remains that while some custom treatment could be tolerated under a share arrangement, much of the programming and most of the data keys have to be uniformly applied or the participants will dissipate the profits inherent in this mode of operation."

Basically, Abbott continued, for most companies in the market at all, the decision lies between:

Renting indefinitely.

Buying outright.

Leasing for several years, and then buying.

The choice between these three alternatives is an investment decision in which the rate of return is largely influenced by the estimated savings of the application, he pointed out, and, to a secondary extent improved by judicious selection of the best financing arrangement.

Although the classic worry about purchase of a computer has been the fear that the machine may become obsolete, the vast increase in computing and access speed that has been achieved in the past five years does not seem to have made companies with older computers dissatisfied with their machines, Abbott declared.

"Technical obsolescence of the central computer seems to be emerging as more of a theoretical proposition than a real one," he concluded. "There

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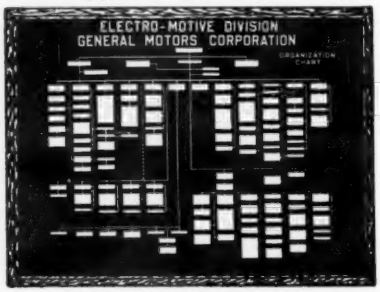

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is a greater liklihood of obsoleting input/output mechanisms to the detriment of persons who have purchased such peripheral equipment. This possibility has prompted some to rent the attachments in order to benefit from periodic improvements in their performance characteristics."

Automation—

(*From page 39*)

for the extra needless capabilities. There is no need to buy a steam shovel when a spade will do the job.

"On the other side of the picture," he continued, "are those persons who feel that any computer of any size can handle any size problem. In other words, we are building toward greater knowledge in the computer field, for the benefit of the users. They need to know what a computer can do for them, how much computer they need, and how much of their work it can do for them economically. A computer is the most expensive bargain available today. It is an expensive item in one sense of the word, but when purchased with wisdom it will probably give greater returns as quickly or more quickly than any other single piece of equipment."

General Electric has for some time been building industrial and special purpose computers, Hagerty said, and intends to intensify its efforts in these lines, rather than in building general purpose computers.

Bendix offers automatic programming

Development of a new "automatic" programming system for its model G-15 digital computer has been announced by Bendix Computer Division, Bendix Aviation Corp. According to the company, the new system makes it possible for relatively inexperienced personnel to write complete computer programs.

Termed POGO ("program optimizer for G-15 operations") the programming plan is based on an internal conversion within the computer of simple instructions into a complete set of machine language instructions. After the instructions have been translated by the computer, it selects the ideal memory location for storage of each instruction.

Once the computer has completed the "rewriting" of the simple instructions prepared by the programmer, it punches its expanded operating instructions into paper tape, creating a complete master program which can be used at any time the particular operation is required again.

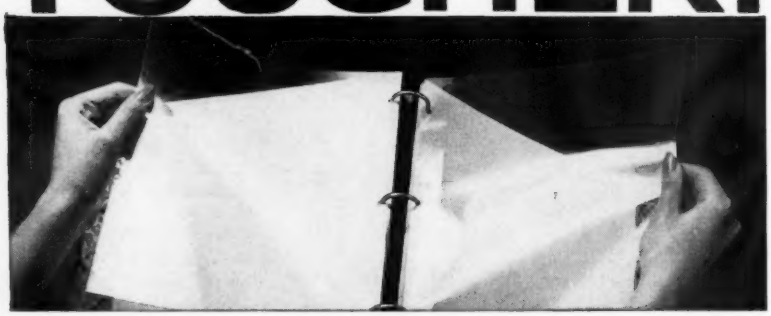
Niagara Power order system

Niagara Mohawk Power Corp. has signed a lease agreement with the Radio Corporation of America for construction of a high speed, completely transistorized, electronic data processing system. The system, which will be in operation by the end of 1960, will be used in customer accounting operations to begin with, and will eventually be used in several major processing operations.

George J. Brett, vice president and controller, Niagara Power, said automation was essential because of the rapid growth of Niagara Power.

"Niagara Power is acquiring this electronic system not only to achieve greater efficiency and economy, but also to handle our continually growing business," the company officer reported. "The company now serves over 1,300,000 electric and gas customers, and we are adding nearly 30,000 customers each year. Each customer account is different, and the total number of calculations for all customers is enormous.

TOUGHER!



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Cut replacement costs with the dozens of new stationery items now being made of "Mylar". Specify "Mylar" when ordering stationery items from your supplier. For demonstration sheet, write: The Du Pont Co., Room VI, Film Department, Wilmington 98, Delaware.

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The new system will enable us to do a great deal more work at no increase in cost, and this is essential if we are to keep our electric and gas rates low."

Sylvania develops mobile computer

Sylvania Electric Products Inc., which has developed a mobile, transistorized digital computer for the Army that can be mounted in a trailer, and operated under field conditions, plans to install the machines in its own Data Processing Center at Camillus, N. Y., and its Data Systems Operations in Needham, Mass.

Robert E. Lewis, president of Sylvania, said the two company installations would follow delivery of the Army units, and would represent the first "fixed-plant" installation of the Mobidic computers.

"The company believes that Mobidic's extremely high speed, modular design, and complete flexibility qualifies it as one of the most advanced solid state computers yet developed," Lewis said. "We expect that it will be capable of handling the increasing data processing requirements of the company for many years."

In addition to "built in" resistance to environment, Mobidic will have the first high speed, random access memory unit which can operate over the entire range of temperature variation, the company officer said.

It will also require far less space than any other computer of the same capacity, he reported, and can function on normal power lines, without any special electrical wiring needed for installation.

NOMA—

(*From Page* 31)

and "The Administrative Executive." Dr. Wesley Wiksell, Louisiana State University, will discuss approaches to better communications, and J. J. Macdonel, Price, Waterhouse & Co., Montreal, will talk on executive qualities.

The second pair of subjects to be treated on Tuesday morning are "Work Measurement" and "Our Manpower Future Through 1965." Paul Holly, Management Systems, Inc., Chicago, will handle the first topic; Edward Boettner, Jr., U. S. Department of Labor, State Supervisor, New Orleans, the second.

Tuesday afternoon will be left free

Checks banked earlier!

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• The MailOpener is quick, neat, safe, efficient—snips a hairline edge off the envelope without touching the contents. Works as fast as you feed it. Can be used by anybody. Handles envelopes of any size, weight or stock. Three models to choose from, hand or electric.

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POSTING SHELF in **ULTR-A-FILE** is an independent unit—not the door top—eliminates removal of files from cabinet — **saves** time and **minimizes** mis-filing errors.

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New Windsor (Newburgh) New York

on the schedule to give registrants a chance to visit the exposition.

The annual banquet, which is the scene of the presentation of the Leffingwell Medal, and the Fellowship Award, will be held on Tuesday evening.

The final day of the conference, Wednesday, May 27, will be devoted to a single technical session in the morning, and the concluding event of the three-day meeting, the annual NOMA luncheon. Subject of the morning session will be "A Program to Increase Office Productivity," and the speaker will be Dr. Earl Strong, of Pennsylvania State University.

Two post-convention trips to Mexico have been planned for those NOMA members who wish to take advantage of the relative closeness of New Orleans to that country. Registrants for both the eight-day and ten-day tour will fly from New Orleans to Mexico City Wednesday afternoon, following the annual luncheon, and spend Friday, Saturday, and Sunday in that capital. On Monday the group will go to Cuernavaca and Taxco. Tuesday, June 2, will be a free day in Taxco for those on the eight-day tour, with a flight back to Mexico City in the evening, and departure for New Orleans on the following morning. Members who are registered for the ten-day tour will continue on to Acapulco on Tuesday. Wednesday and most of Thursday will be spent in Acapulco, with the group returning to Mexico City Thursday evening, spending the night there, and flying back to New Orleans on Friday morning.

Cost of the two tours, including transportation, hotels, and meals will be $291.40 for the eight-day trip, and $374.50 for the ten-day itinerary.

Agency—

(*From page* 27)

The correspondence file could be reduced by 40 file cabinets by destroying close to 1,000,000 pieces of paper. This would also release 240 square feet of badly needed office space.

Nine thousand, two hundred and fifty addressograph plates could be eliminated.

The number of donations and the acknowledgement of donations could be increased by 50 percent with present personnel and all acknowledgements would be made within 48 hours.

Management agreed to the recommended changes, and the consultants went ahead with installation of the new system—Phase Two of the project. The complete installation of the new system required only 13 weeks.

Phase One of the study had pointed out that the big bottleneck in contribution processing was the "pulling" for solicitations, posting to and refiling donor cards.

The donor card contained in addition to the usual identifications—name, address, etc. such specialized information as:

Industry or campaign group in which the donor normally contributed (over 250 separate categories were involved).

Whether the donor gave only to a specific campaign or drive or to more than one.

Male or female donor.

If the donor was a member of any other volunteer group.

If a corporation gave—what type i.e., publicly owned, private, fund, foundation, etc.

The donor cards had various uses. During campaigns, cards were manually selected by industry group to help

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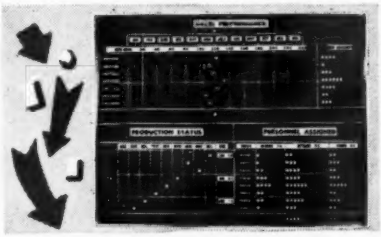
Visual Control Systems



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For information on the most modern and advanced board available today, write to:

MAVCO maggie magnetic visual aids corp.
19 West 32nd Street New York 1, N.Y.

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prepare mailing lists. Donor cards were pulled as contributions were received for posting. Donor cards were pulled to check purchased lists or new leads to determine if the new names were already contributors. Donor cards were pulled to update or change static personal information contained on them. Each time a donor card was pulled it had to be refiled in proper order.

The key to faster processing was found in the actual handling of donor cards. When a card was being pulled, processed, or refiled it was out of its normal filing pattern and thus was not available for other use. This caused serious delays. In some cases the processing of a whole "batch" of contributions was held up pending the location of one card. The obvious answer was that the cards would have to remain in file or when used would have to be pulled instantly, processed and instantly replaced! It was just as obvious that human beings could not work with this speed or accuracy. The consultant working with an equipment manufacturer developed a system that would use a new machine filing device.

Donor cards were redesigned using a regular 5 x 8 inch card with a strip of thin metal teeth along the bottom edge. The cards could still be processed through standard typewriters or posting machines. Each new card was coded along the metal strip for contributor's name and all specialized information required. After coding, the cards were housed in trays each of which contained 1,000 cards. Although cards are placed in trays at random, a touch on a key board "pops up" the desired card or cards by name or any specialized category, regardless of the card's location in the tray.

In using these new coded cards there was no need for sequence filing, thus there could be no misfiles. Groups of cards, after processing, could be placed anywhere in the file.

Cards could be selected by any one category or by *any groups* of categories i.e., all male donors in the insurance industry that normally give to the Christmas Fund could be selected at the touch of a key.

Cards never leave file

What if it were necessary for a card to be taken from the automatic file for study? A fast copy machine was purchased and placed near the file. Now only a photocopy of the card leaves the file—the original always remains in file. The big bottleneck of contribution posting had been broken.

Emphasis was then placed on cutting down the volume of paperwork and speeding all other operating steps.

A solicitation card file of 7,000 prospective contributors was maintained. When new lists of prospects were received these lists were checked against the prospect file to see if the prospect had already been solicited. After analyzing this procedure a policy meeting was held. Backed with facts gained through analysis, some simple questions were raised. "Why check the new lists against the prospect lists?" "What harm is done by resoliciting someone who has not been giving?" "Do you know that operation is now costing you . . . ?" As a result of having the facts, costs, and objective recommendations a policy decision was reached. Seven thousand prospect cards were destroyed and the entire checking operation was discontinued.

In another file 24,000 cards were destroyed since the persons involved were deceased.

Six thousand four hundred-eighty "lapsed" donor cards were destroyed. It was recommended and approved

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FOR ALL ERASING...
Take your Pick!
KLENZO-33
WITH AND WITHOUT BRUSH
Famous Klenzo quality in convenient wood-casing. Sharpens to "needle point" for ballpoint, typewriter and ink work.
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The standard for erasing. Paper wrapped to permit quick, economical repointing.
A Klenzo erases equally good wrapped in paper or cased in wood.
AT BETTER STATIONERS EVERYWHERE
Send 10c for twin samples naming this publication.
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that after not contributing for 10 years a contributor should be classified as "lapsed." If he again contributed he would be treated as a new contributor and a new card could be prepared.

The correspondence file was reduced by 50 percent through destruction of obsolete material no longer functionally necessary to current operations.

More than 9,000 addressograph plates were destroyed by developing a coding and flagging system. Now a single plate could be used where formerly two were needed.

One clerical group spent 50 percent of its time typing a "Daily List of Contributions and Contributors" for use by fund raisers. This operation was completely eliminated by giving the fund raisers an extra copy of the receipt for each contribution. This gave the fund raisers quickly and automatically *all* the information needed by using material that was on hand all along.

It was revealed, by costing out the operation, that the average cost for acknowledging each contribution was $5.52. Indeed, an excessively high figure. The new system has reduced this cost by more than 60 percent. How many organizations really know what it actually costs to acknowledge each contribution?

For large donations personally typed letters were used. By using a tape controlled typewriter, a "personalized" letter is now created by machine.

Under the new system the receipt for each contribution also serves as an acknowledgement (again eliminating an operation by using information already available).

"Timesavers" threaded into system

All through the project "timesavers" were introduced as by-products of the overall system change.

To mention a few:

Using an automatic letter opener instead of manually opening each contribution. To further speed this operation, a new return envelope was designed with all fill-in information on the flap (this form in turn expedites posting operations by placing the important information in proper functional sequence for speedy reading, handling and checking).

A by-product tape was created on the automatic typewriters which provide a "free" listing and/or addressing of names to be used in mailings. Thus, at a fraction of the former cost of manually creating each list and then addressing individual envelopes it was now possible to increase and expedite direct mail solicitation.

Cost standards were established for requests to the record room for special studies and statistical information. Now officials know the cost of their requests in advance. The result is that a second look is given to each special request.

The value of the information requested is "balanced" against the cost of compilation. Requests are now limited to actual and economical need.

(*To page* 83)

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FILE 'EM
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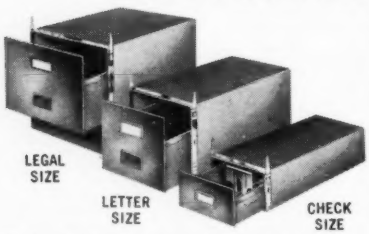
a size for every office record



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A GEYER-McALLISTER PUBLICATION
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The 140 separate clerical steps formerly needed to process a donation were reduced to 98.

Overall clerical production was increased by 50 percent with almost 50 percent less people.

Net tangible savings for the next five years will be in excess of $150,000.00.

When the project was completed the record room had changed. A new physical and mental atmosphere emerged. A new office layout provided better working conditions and a more orderly flow of work. New machines replaced dull and repetitive tasks. Personnel were proud of their part in the program. The staff had been reduced by close to 50 percent (released personnel were reassigned to other departments), now each person had a more "important" job — a more "important" responsibility.

Here are some of the general guides that were applied to improve paperwork efficiency:

Do not attempt to change basic procedures unless you are able to give full time attention to the project.

Spend time to really know all aspects of present procedures.

Do not confuse traditions with necessary procedures.

Do not attempt to improve only one small segment of the operation (this is only patchwork), attack the whole problem — paperwork is integrated.

If paperwork is bogged down don't just modify the old system or change "fringe" areas. This is like polishing a 1920 car — it looks better but does not run better — try for a 1959 model.

The length of an employee's service does not necessarily correlate with the amount of procedural knowledge he has.

Don't become fascinated with a new office machine. Most machines can be made to fit most situations — check them all and look for the one that closely fits your needs.

Spend time talking to all concerned with the operation. Individuals may know their job 100 percent—but little else that goes on around them.

Cost out each operation.

Carefully schedule and time the installation for each change. Don't attempt one big change-over date. Continue normal operations without disturbance.

Get professional assistance or advice if you are not sure. It will be cheaper in the long run.

Don't spend $10.00 on a new system to save $1.00.

This project was important because it revealed that welfare agencies can improve their overhead cost position through exactly the same approach industry uses. It also revealed that there are vast areas for improving paperwork operations in charitable organizations.

Today, with the new program in operation:

The donor gets her acknowledgment within 48 hours.

The morning mail of the executive does not bring a disturbing second solicitation but rather a personalized "thank you."

The volunteer fund raiser knows at once that the promised donation has been received.

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Newark 3, N. J.

Inventory—

(*From page* 37)

with like characteristics from all others without any difficulty. This aids greatly sorting and classification procedures.

Let us suppose that Racine is about to start through the plant production orders on various models of pumps. Some of these have, of course, common parts. One aim, at this point, is to know which ones and to post the withdrawals to the inventory journal and the parts ledger cards. (*To page* 84)

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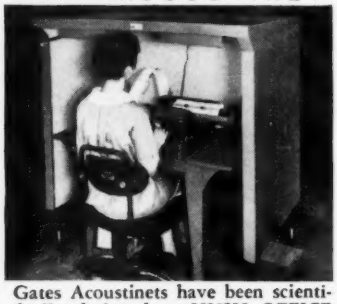

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Write today; give machines, make, model used and measurements.

Gates ACOUSTINET

628 American Standard Bldg., Buffalo 7, N. Y.

There is on file a card for every component in each product. Some are duplicates because the same parts may be used in the manufacture of various products. By intersort and tabulation, Racine determines how many units of each component are needed in production. These anticipated withdrawals are the ones posted to inventory cards.

The withdrawals may cause a drop below the prescribed minima which are determined by sales forecasts and result in additional plant orders or in the purchase of components from the outside. It should be stated that about half of the components used are manufactured by Racine; the remainder are purchased from outside companies.

The heart of the Racine control procedure is the Work Load Report, Figure 1, which is produced weekly. The Report is the result of the sorting and tabulation of the Load tickets. Here are the Load Ticket procedures, of which the Work Load Report is the outcome:

Each Friday, the Production Control Department releases to the plant those jobs whose due dates indicate that production runs on them should begin. All necessary production records, except the Load Tickets, are sent to the initial work center.

The Load Tickets go directly to the Dispatch Center which is the operating headquarters on the plant floor. Here Keysort Load Tickets are filed, by work center, in three-tier open end files. The upper files hold Load Tickets on jobs released for production. The middle file stores tickets which cover jobs that have physically reached the work center in question. Tickets on jobs assigned and in process are to be found in the lowest tier.

Production Control and Dispatch Center personnel as well as the foremen have become quite skillful in visualizing the trends shown by the data in these files. Even before the Work Load Report is issued, decisions are made which speed up production, foresee bottlenecks and eliminate them in advance, and minimize uneconomical short runs.

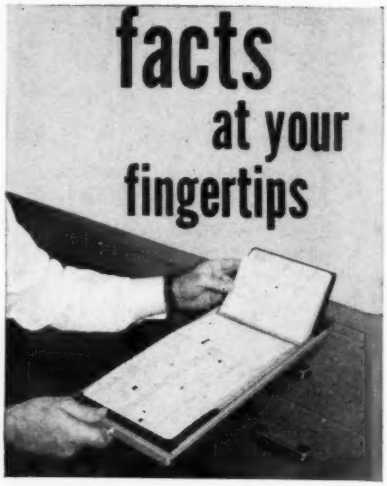
The Work Load Report gives the basic data on the various jobs by work center. Measures of efficiency, hours worked, the time standards for particular jobs, and capacity in men and machines used are shown in the Work Load Report.

Formerly, the facts needed for effective control of operations were spread over the plant. Now such data are concentrated at one point — the Dispatch Center. This is the basis, says James E. Mohrhauser, vice president of the company, for Racine's integrated control of all operations.

The Work Load Reports, Mr. Mohrhauser stresses, "have become as valuable to us as navigation charts are to a captain at sea. Currently, we know, by work center, the load in standard hours, actual hours worked, plus utilization and efficiency ratings and job backlogs by weeks."

Copies of the Production Order are

facts at your fingertips



Unique G/W visible record card tray skillfully concealed in the desk arm slide is an exclusive feature available only for Globe-Wernicke Streamliner® Metal Desks. Ideal for telephone listing, sales, credit, purchasing, personnel records, etc. Holds 50 cards (5" x 8"), usable both sides, for 100 complete records. Hidden locking device assures record privacy. Record tray is removable. This inexpensive desk arm slide with visible card record tray quickly pays for itself by its indispensable service. See it at your G/W dealer now. Or write Dept. G-4.

GLOBE-WERNICKE

The Globe-Wernicke Co. • Cincinnati 12, Ohio

Attend the 12th Annual

SOUTHERN CALIFORNIA BUSINESS SHOW

APRIL 21, 22, 23, 24, 1959

10 A.M. to 10 P.M.

AMBASSADOR HOTEL
LOS ANGELES, CALIF.

Sponsored by the Los Angeles Chapter
NATIONAL ASSOCIATION OF ACCOUNTANTS

FREE DIES AND PROOFS

GENUINE ENGRAVED LETTERHEADS $15.00 FOR 1000

Genuine ENGRAVED BUSINESS CARDS 500 $11 • 1000 $15

BUSINESS ANNOUNCEMENTS

BUSINESS ANNOUNCEMENTS 500 ONLY $20

CLIP YOUR LETTERHEAD TO THIS AD... MAIL FOR FREE PROOF

$12.00 FOR 100

DEWBERRY ENGRAVING CO.
807 SO. 20th ST., BIRMINGHAM 5, ALABAMA

Use Readers' Inquiry Coupon on Page 88

sent to the Tool Crib. It is the job of the Crib to see that the required tools and jigs are in the tubs with the castings before the job is begun.

The new procedures have increased the morale of supervisory personnel and have made the entire Racine operation more flexible. For example, company foremen are enthusiastic supporters of the production control system. They have been encouraged by the new system to relate their responsibilities to the whole. In the past, foremen were not in the position to make suggestions, for they could see little more of the whole picture than the work actually done in their departments. They could only protest against what admittedly were often impossible demands made on them.

Now, each foreman is given the opportunity to anticipate developing situations. If he sees troublesome bottlenecks looming up, he confers with Production Control so that steps can be taken to eliminate the condition before it materializes.

One of the reports now issued is an efficiency rating, by work center. Each center is under the supervision of a foreman. Naturally, foremen watch these reports with great interest. They are, of course, eager to track down situations which may lower their efficiency ratings.

Availability of the new procedures has aided the operation of various departments in the company. In addition to facilitating accounting and production functions, the new program has also helped Racine executives in reaching major policy decisions. For example, John Erskine, Racine's executive vice president, found the system exteremely useful in planning a recent machinery changeover program. Racine had decided to switch from certain general purpose equipment to more specialized machinery. The reports which reveal product mix in relation to the flow of required labor operations were found by Mr. Erskine, who was in charge of the changeover, to be an excellent guide in making the requisite policy decisions.

"Emergencies" are now exceptions

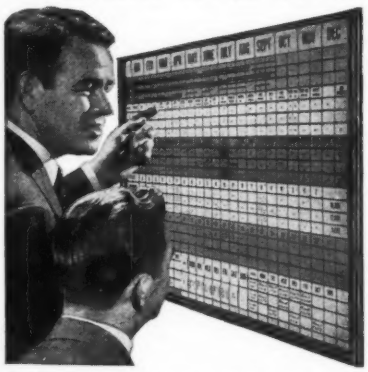
As the result of the installation of the controls, it is now unusual for Racine to tear down long-run setups to take care of "emergencies." Overtime is also under effective central control. It is possible to look forward to such an eventuality many weeks in advance. Intelligent decisions can now be made to adjust production to keep on schedule, minimize overtime and layoffs resulting from the inefficient flow of work.

A striking indication of the increase in efficiency resulting from the new program is shown by the sizeable inventory adjustment made last year by Racine. In determining cost ratios, the company first made certain assumptions based on historical data. In actual performance, it was found that Racine's cost of sales was two percent less than it would have been on the basis of these "historical cost" assumptions. Obviously, these "historical costs" have become overstatements because of a rising efficiency in Racine's operation.

One thing is certain, Racine's executives believe. This level of efficiency will continue to climb because the new program utilizing edge-notched cards enables Racine to know at once why jobs are off-schedule. When the spotlight is focused automatically on production snarls, they are far more certain to be cleared up. The experience of Racine Hydraulics has shown this to be the sober truth when such a system of record-keeping is adopted.

Use Readers' Inquiry Coupon on Page 88

You Get Things Done With Boardmaster Visual Control



☆ Gives Graphic Picture of Your Operations—Spotlighted by Color
☆ Facts at a glance — Saves Time, Saves Money, Prevents Errors
☆ Simple to operate—Type or Write on Cards, Snaps in Grooves
☆ Ideal for Production, Traffic, Inventory, Scheduling, Sales, Etc.
☆ Made of Metal. Compact and Attractive. Over 350,000 in Use

Complete price **$49.50** including cards

FREE 24-PAGE BOOKLET NO. G-400 Without Obligation

Write for Your Copy Today

GRAPHIC SYSTEMS

55 West 42nd St. • New York 36, N.Y.

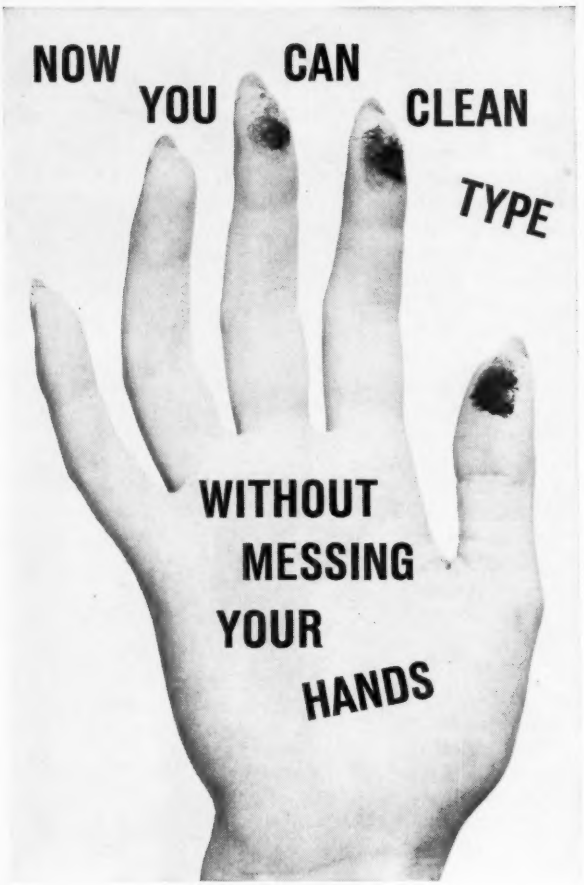
What's the point of writing without Dixon Ticonderoga Pencils!

Would you like to try one of our famous Ticonderoga Pencils? Experience the pleasure of writing easier, smoother, faster. Pick-a-Point that you like best and send for one today.

Pick-a-Point
- No. 1 EXTRA SOFT
- No. 2 SOFT
- No. 2-5/10 MEDIUM
- No. 3 HARD
- No. 4 EXTRA HARD

DIXON

THE JOSEPH DIXON CRUCIBLE CO.
Pencil Sales Div. OOM-4, Jersey City 3, N.J.
Dixon Pencil Co., Ltd., Newmarket Canada



NEW ROYTYPE PLASTIC TYPE CLEANER

Just press it on type faces . . . lift it off . . . your typewriter type is as clean as a whistle!

You can use the new ROYTYPE Plastic Type Cleaner over and over again—because it's made of durable, flexible, long-lasting plastic.

Order now from *your* Mr. Roy Type, the ROYTYPE Representative.

ROYTYPE®

Products of Royal McBee Corporation, World's Largest Manufacturer of Typewriters.

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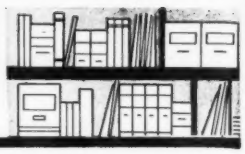
CATALOGS
BOOKLETS, BROCHURES FOR THE OFFICE



Data processing equipment (1)

Tab Products Co., 995 Market St., San Francisco 3, Calif. An 80-page, fully illustrated catalog of auxiliary equipment for data processing departments with easy reference to particular phases of data processing procedure.

Microfilm reader (2)

The Filmsort Co., Div. of Miehle-Goss-Dexter, Inc., Pearl River, N. Y. A brochure is available describing the Filmsort "Designer 184" microfilm reader for engineering drawings.

Office furniture (3)

Yawman & Erbe Mfg. Co., Inc., Rochester 3, N. Y. Full color, eight page catalog depicting new *Exendra* line of office furniture. A basic collection of nine specialized modular components is featured.

Punched form binders (4)

C. E. Sheppard Co., 44-10 P 21st St., Long Island City 1, N. Y. Cesco catalog "L" lists various types of binders available for marginal punched forms used in electronic data processing.

Postal rates (5)

Pitney-Bowes, Inc., 2950 Walnut St., Stamford, Conn. Desk or wall chart is available depicting 1959 postal rates, with parcel post map and zone finder.

Addressing-data machines (6)

Scriptomatic, Inc., 316 N. 11th St., Philadelphia 7. Case histories and descriptive material are available describing the use and methods of addressing-data writing machines when combined with punched card automation.

Telephone service (7)

Boyce Morgan Associates Inc., 1631 K St. N.W., Washington 6, D.C. Forty questions provide a check sheet for any organization to appraise the quality of its own telephone service.

Office furniture (8)

Interstate Metal Products Co., Inc., 666 Lake Shore Drive, Chicago 11. Catalog describes in detail a line of versatile bookcases, and co-ordinated office supply units.

Business management (9)

Caruso, Malis and Worn, Inc., 300 W. Washington St., Chicago 6. *How To Plan For Profit* is a booklet presenting step-by-step analysis of long-range marketing, merchandising, and advertising planning for small and medium sized businesses.

CLASSIFIED ADVERTISING

Rates: Minimum 20 words $5.00. Each additional word 25c. Payable in advance. Address replies to all Box Number ads c/o OFFICE MANAGEMENT, 212 5th Ave., New York 10, N. Y.

For Sale or to Buy

SALE: FACTORY DEMONSTRATOR ELECTRIC 2 in 1 Folding and Letter Opening Machine. Fully guaranteed. Regular price $432.50, yours for $198.50. Lansdale Products, Box 568, Lansdale, Pa.

TWO UNDERWOOD SUNDSTRAND POSTING Machines, only two years old. Model 22AA only $395.00. Model 9243P $750.00. Allen Sportswear, 306 Court, Des Moines, Iowa.

FREE TO VARI-TYPER USERS Your name in the margin brings Type Face Illustrations. 70% Saving in cash our amazing offer. Free Trial Too. Adam Co., 1425B, Thieriot Ave., N.Y. 60, N.Y.

WANTED ALL TYPE OFFICE Machines, Filing Equipment, Office Furniture, Karadex, Acme Post Index. Will exceed a manufacturers' trade-in allowance. Write, Wire National Office Equipment Co., 429 Broome St., New York, N.Y.

FOR SALE: "NATIONAL" POSTING Machine. 6 totals. Good condition. Price $250.00. Louisiana Welding Supply Company, 1931 Plank Road, Baton Rouge, Louisana, Phone DI-39212.

FOR SALE: BEST OFFER F.O.B. Chicago. 12 sets (2 Cabinets, 77 Trays each for 16" stand); 1 Automatic Graphotype #6740 Serial 563490; 2 FG 80 Flexowriters (serials 1275 and 2865) O.M.314.

FOR SALE: BEST OFFER, F.O.B. Flint, Michigan. One Friden Computyper, Model B-199, Serial STW10-556794, IBM-408451, used only 18 months. J. P. Burroughs & Son, Inc., P.O. Box 299, Flint, Michigan.

PITNEY-BOWES POSTAGE METER "AV" model. Two years old. Perfect, like-new condition. Used very little. Only $1600.00 F.O.B. Milwaukee. Ideals Publishing Co., 3510 W. St. Paul Avenue, Milwaukee 1, Wisconsin.

Business Opportunities

MANUSCRIPTS WANTED. LEADING BUSINESS Book Publisher seeking manuscripts in the field of sales, office management, human relations, labor relations, management systems. Prefer authors well recognized in their field. Excellent royalty arrangement, strong merchandising set-up assures excellent sales of books developed from accepted manuscripts. Write to Box OM 1936, 124 W. 41st Street, New York 36, N.Y.

PROGRAMMING COMPUTERS. Learn to apply business problems to electronic computers. Send for Free Brochure describing our Home Study Course, "Programming for Business Computers." Member National Home Study Council. Business Electronics, Inc., Education Section, 420 Market Street, San Francisco 11, Calif.

Positions Available

COMPUTER PROGRAMMERS for fine permanent positions in beautiful, temperate-all-year San Diego, Calif. IBM 702 or 705 experienced or IBM 650 Computer programs to be trained for 705 programming. Also IBM tabulating analysts and 705 Console operators. Must be able to show proof of citizenship. O. M. 313.

FIGHT HEART DISEASE

GIVE HEART FUND

SORG'S 410 Translucent

Whiteprint Master Copy Paper

• *for* **LOW-COST** *Direct-Copy Reproduction*

• *Perfect Copies* **EVERY TIME!**

With the use of direct-print copy machines becoming daily more widespread in the business field, the demand for a high-quality, low-cost translucent master paper has grown tremendously.

Now, thanks to its 105 years of experience in making special papers to exacting specifications, Sorg has developed a high-grade translucent paper that meets all the requirements of a top-quality master sheet—and yet is priced low enough to allow its use on EVERY business form.

Sorg's *410 Translucent* is manufactured with controlled translucency so that whether you use typewriter, pen, pencil, or you print it, you will always be sure to get clean, sharp, identical copies every time! In addition, it is strong and durable — stands up well under erasures and frequent handling.

Your request on your own business letterhead will bring you a portfolio of 410 Translucent sample sheets for testing on your own direct-copy machine — as well as the name of your nearest Sorg paper distributor.

SORG PAPERS — THE SORG PAPER COMPANY

Middletown, Ohio

Manufacturers and Converters of Stock Line and Specialty Papers

Offices in: NEW YORK, PHILADELPHIA, CHICAGO, BOSTON, ST. LOUIS, LOS ANGELES

GUSSCO

THE HANGING FOLDER WITH ADJUSTABLE METAL TAB

Guide-O-folder

**T. M. Reg.*

Your "filing and finding" problems disappear when you use Guide-O-folders in your active files. Not only do you save both time and money but you remove the drudgery from the filing department and make it a pleasant place to work.

You will appreciate the speed and accuracy with which your records are filed and kept instantly available for reference. Your clerks will appreciate the ease and accuracy because all the tugging and pulling of ordinary folders is eliminated. Guide-O-folders just glide back and forth on their steel frames with finger tip ease.

Ask your local stationer or office equipment dealer to show you how Guide-O-folders will solve your filing and finding problems.

GUIDE SYSTEM & SUPPLY CO.
335 Canal Street New York 13, N. Y.

Use Readers' Inquiry Coupon on Page 88

GET MORE INFORMATION *quickly--easily*

On New Products

•

Obtain New Catalogs and Helpful Literature

INQUIRY SERVICE

For
Subscribers
to
OFFICE MANAGEMENT

This service is provided for the convenience of Office Management Executives in obtaining complete information on the products advertised in this issue. Advertisements are identified by their respective page numbers. Fractional page advertisements are further identified by the initials of the advertiser.

Simply circle the respective numbers in coupon below

Just circle the numbers on which you want further information; fill in your name and address below, tear out and mail to Office Management. Our office will forward your inquiries promptly to the companies concerned.

SEND OFF THIS BLANK . . . FOR PROMPT SERVICE

OFFICE MANAGEMENT
212 Fifth Avenue, New York 10, N. Y.

Please forward to the respective companies, our request for further information on the items we have circled below. There is no obligation to us for this. We understand this is a service to us as a subscriber.

APRIL 1959 ADVERTISEMENT

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TOOLS OF THE OFFICE

Information on products listed in the Tools of the Office section may be requested by writing in names of manufacturers.

Manufacturers	Page No.

Name ..... Title .....

Company .....

Address .....

City ..... Zone ..... State .....

Number of Office Employees (all departments) .....

April 1959 Issue
Office Management
This inquiry form good until May 15, 1959

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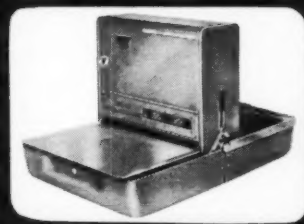
time-saving
"OFFICE TOOL"
for
Procedural Microfilming

This young lady, with just one application of "Procedural Microfilming", saves over an hour **every day** in preparing the daily check register! Using microfilm in your daily business procedures will cut clerical costs, provide photographic accuracy and protect records against loss or destruction.



The FLOFILM 9600 is the only microfilm camera specifically designed for "Procedural Microfilming." **Compact** for easy, everyday use; **portable** for use in many departments; this **low cost, motorized** camera features the exclusive **film magazine** for complete **flexibility** in daily procedures.

CLIP this coupon to your letterhead for free copies of "An Introduction to Microfilm", "Manual on Procedural Microfilming" and the new "Rental Plan Folder."

Name_____

Title_____

Diebold
INCORPORATED
Flofilm Division
Dept. 0-4, Norwalk, Conn.
Sales and Service Offices in
All Principal Cities

Use Readers' Inquiry Coupon on Page 88

editorial

The integrated company

THE INTEGRATED OFFICE has become almost a byword in the days since integrated data processing and automation first moved into the vocabulary of office management. But a reminder of a point that has been stressed repeatedly in this magazine comes again from the recent AMA electronics conference in New York. (See story, page 32.) The office exists as a part of a company, not as an independent entity; true automation is achieved when the office functions as a nerve center controlling by automatic means all the operations of the company, in response to the changing situations affecting the company.

It is not enough to automate all the internal data processing routines of the office: accounting, payroll, billing, sales statistics. All these are important—but they do not represent the whole of the company. For most companies make a product—and it is precisely in the area between administration and production that automation's potentialities have been least explored. We have had automation in the office; we have had automation in the factory. Bu the systems developed have too often been parallel and independent, with the necessary exchange of information between factory and office carried out by the most cumbersome and traditional of methods.

It is in the area of coordinating and controlling the reciprocal actions of manufacturing and administration that the most fertile field for new advances in automation may exist. And it is precisely this point that was made by C. W. LaPierre, vice president, General Electric, in his talk at last month's AMA conference. The great potential of electronic data processing, he emphasized, lies in its ability to make possible business operations never before attempted, rather than in simply streamlining conventional office or factory operations. And the ultimate goal is the integration of the entire company into one cohesive working whole, all parts of which can respond smoothly, automatically, and correctly to every outside circumstance affecting the business.

Dazzling new SPRINGHILL® BOND is actually whiter than pure white salt

—YET COSTS NO MORE THAN "OFF-WHITE" BONDS!

WHEN YOU FIRST see dazzling new Springhill Bond, you sense your eyes are playing tricks on you. It's so *white!* Then you hold a sheet to the light and you're really amazed. No watermark!

The truth is, new Springhill Bond is whiter than any other unwatermarked bond paper on the market. A well-known research lab proved that new Springhill Bond was *measurably whiter* than salt, chalk, even surgical cotton!

But this remarkable new paper is more than just white. It's level and uniform, too. And crisp. Just try to pick up a sheet without making a crackling noise!

Compare Springhill Bond for whiteness, finish, opacity, and "crackle." Once you do, you'll recommend it.

Extremely printable

We insure excellent results every time by cutting a sample ream from every reel and having it tested on actual printing presses. Springhill Bond is made to order for offset and letterpress printing.

New Springhill Bond and Mimeograph are available in white and six colors in a complete range of stock sizes and weights. The Springhill line is also available in Duplicator and Ledger papers.

Look for this attractive new design. Handy "zip" openers on 8½ x 11 reams. All cartons polyethylene-lined to control humidity.

INTERNATIONAL PAPER 220 East 42nd Street, New York 17, N.Y.

Use Readers' Inquiry Coupon on Page 88

thanks to XEROGRAPHY...

LAWRENCE M. READ, secretary-treasurer of National Credit Office, Inc., in NCO file room containing thousands of financial reports for client consumption.

National Credit Office, Inc., Gets Higher Quality at Lower Cost, Reproducing...

- **SPECIAL CREDIT REPORTS**
- **MARKET RESEARCH DATA**
- **CORRESPONDENCE COURSES IN CREDIT AND ANALYSIS**

National Credit Office, Inc., 2 Park Avenue, New York City, the largest specialized mercantile agency in the country, distributes detailed financial statements and reports to its clients on a year-round basis. Additionally, it makes available to them fully documented market surveys, some running more than 100 pages, on specific industries such as electronics, textiles, automotive, etc.

A third service is the annual updating and reproduction of a 367-page manual used in a correspondence course on credit and financial analysis.

Before NCO installed XeroX® Model 1218 copying equipment, time limitations made it necessary to condense into retyping much of the interesting detail in the original reports.

Now at NCO, the Model 1218 equipment copies two original pages at a time onto an 11″x17″ offset paper master. Each master is cut in two, and multiple copies are then run off on an offset duplicator. Runoff prints are of high quality—sharp black on white.

Model 1218 copying equipment operates on the electrostatic principles of xerography and is dry, clean, and fast. It is able to enlarge, reduce, or copy size to size.

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